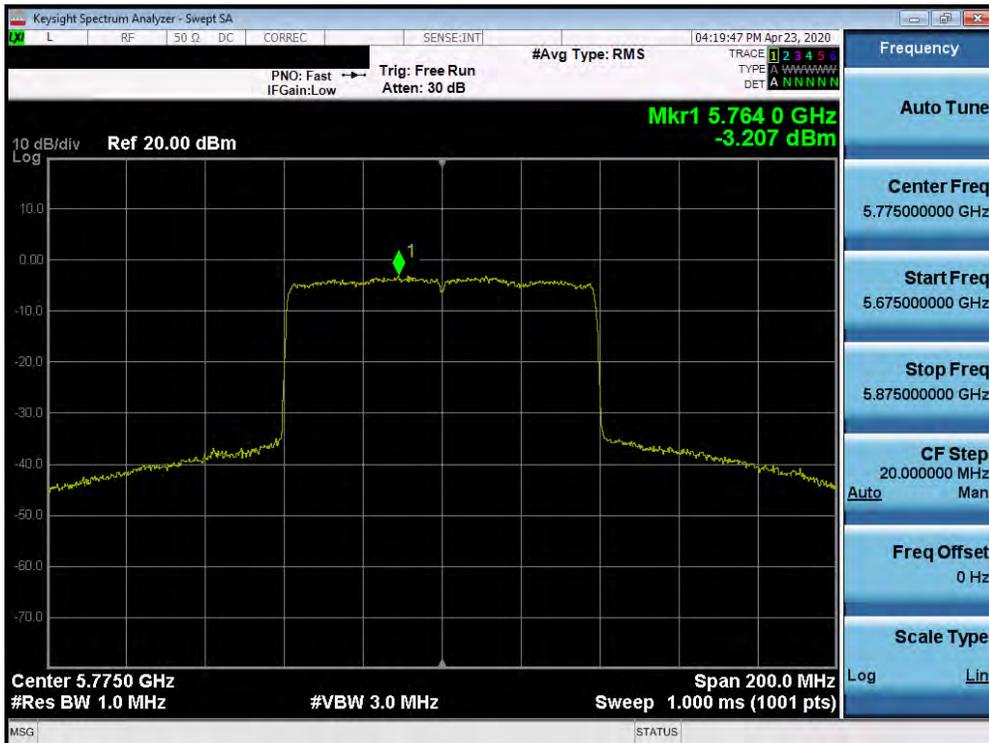


Plot 7-161. Power Spectral Density Plot SISO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 159)



Plot 7-162. Power Spectral Density Plot SISO ANT1 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)

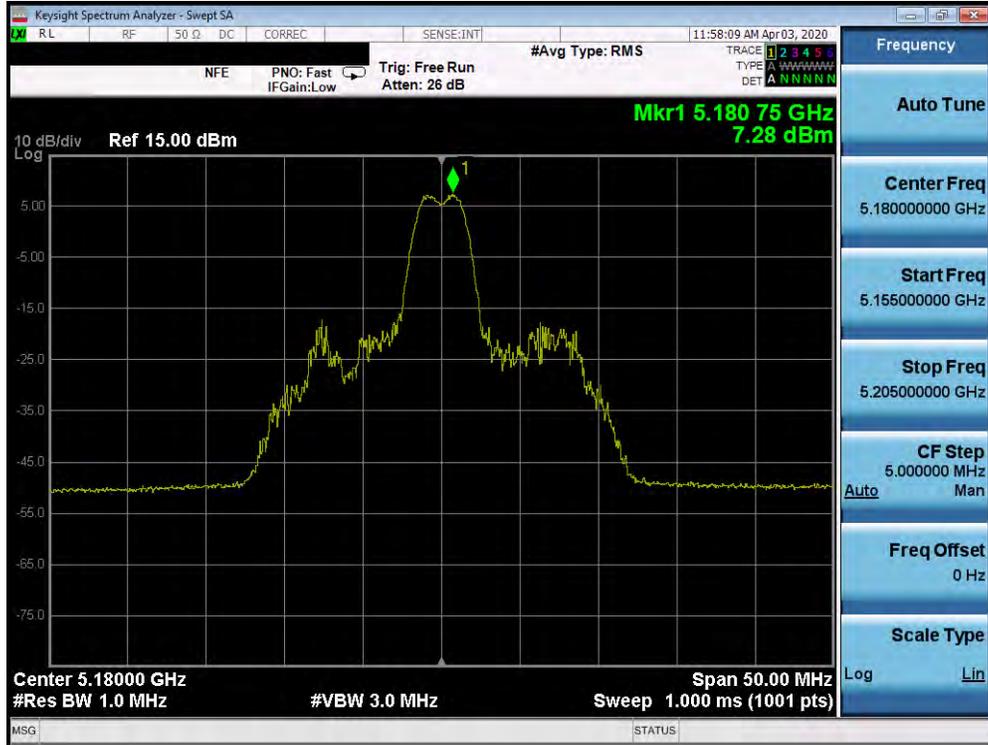
FCC ID: A3LSMG981V	<b>PCTEST</b> Proud to be part of Samsung	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 131 of 299

### SISO Antenna-2 Power Spectral Density Measurements (26 Tones)

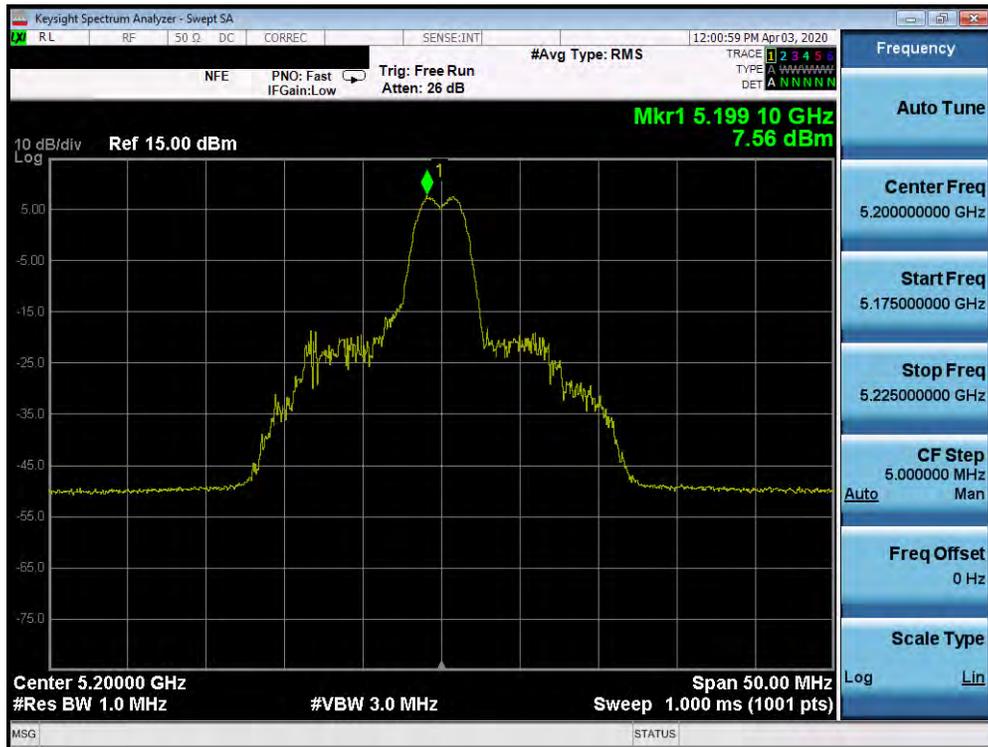
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26T	7.28	11.0	-3.72
	5200	40	ax (20MHz)	26T	7.56	11.0	-3.44
	5240	48	ax (20MHz)	26T	7.45	11.0	-3.55
	5190	38	ax (40MHz)	26T	9.61	11.0	-1.39
	5230	46	ax (40MHz)	26T	8.96	11.0	-2.04
	5210	42	ax (80MHz)	26T	7.60	11.0	-3.40
Band 2A	5260	52	ax (20MHz)	26T	7.14	11.0	-3.86
	5280	56	ax (20MHz)	26T	7.10	11.0	-3.90
	5320	64	ax (20MHz)	26T	6.75	11.0	-4.25
	5270	54	ax (40MHz)	26T	9.02	11.0	-1.98
	5310	62	ax (40MHz)	26T	8.86	11.0	-2.14
	5290	58	ax (80MHz)	26T	6.26	11.0	-4.74
Band 2C	5500	100	ax (20MHz)	26T	6.61	11.0	-4.39
	5600	120	ax (20MHz)	26T	5.88	11.0	-5.12
	5720	144	ax (20MHz)	26T	5.50	11.0	-5.50
	5510	102	ax (40MHz)	26T	8.53	11.0	-2.47
	5590	118	ax (40MHz)	26T	8.01	11.0	-2.99
	5710	142	ax (40MHz)	26T	8.00	11.0	-3.00
	5530	106	ax (80MHz)	26T	6.70	11.0	-4.30
	5610	122	ax (80MHz)	26T	6.80	11.0	-4.20
	5690	138	ax (80MHz)	26T	4.57	11.0	-6.43

**Table 7-58. Conducted Power Spectral Density Measurements SISO ANT2 (26 Tones)**

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 132 of 299

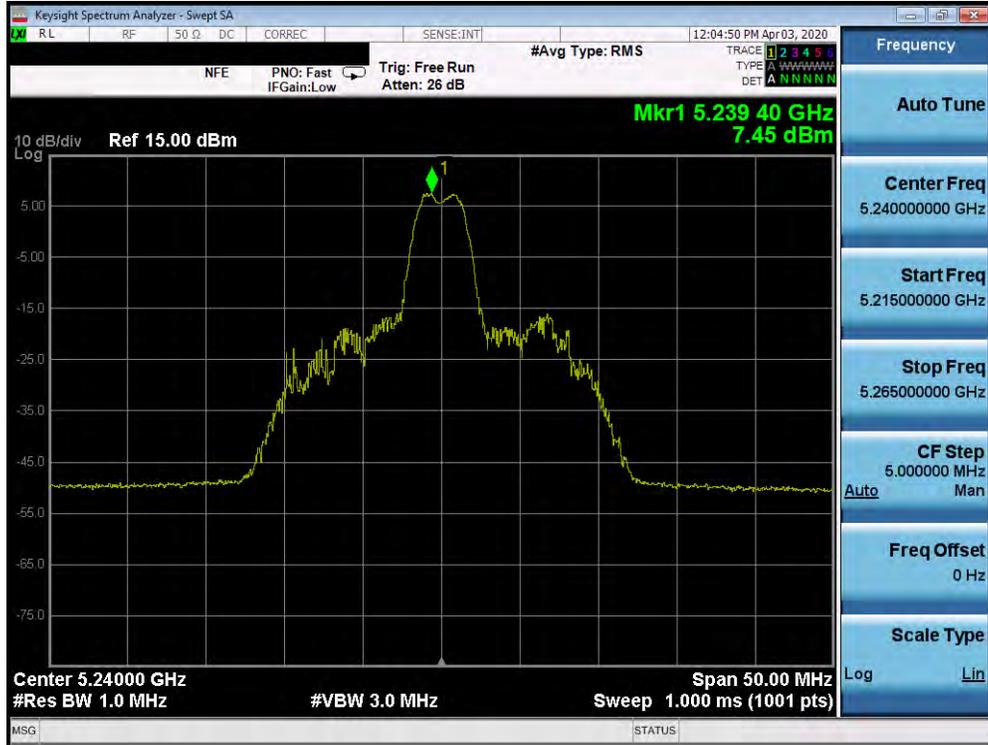


Plot 7-163. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

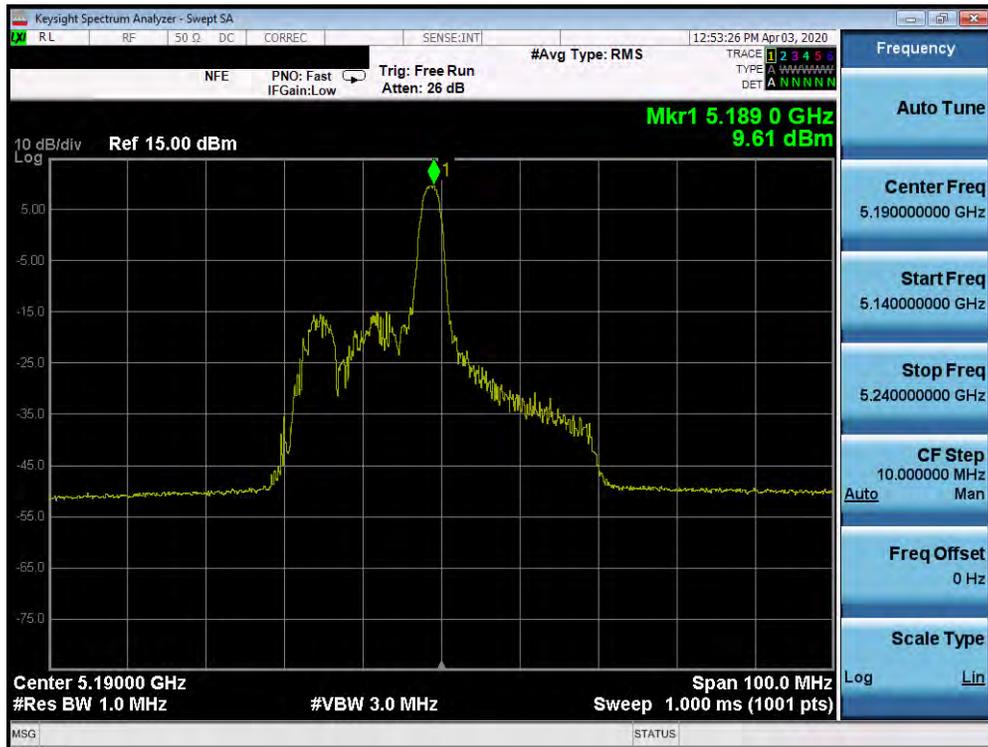


Plot 7-164. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 133 of 299

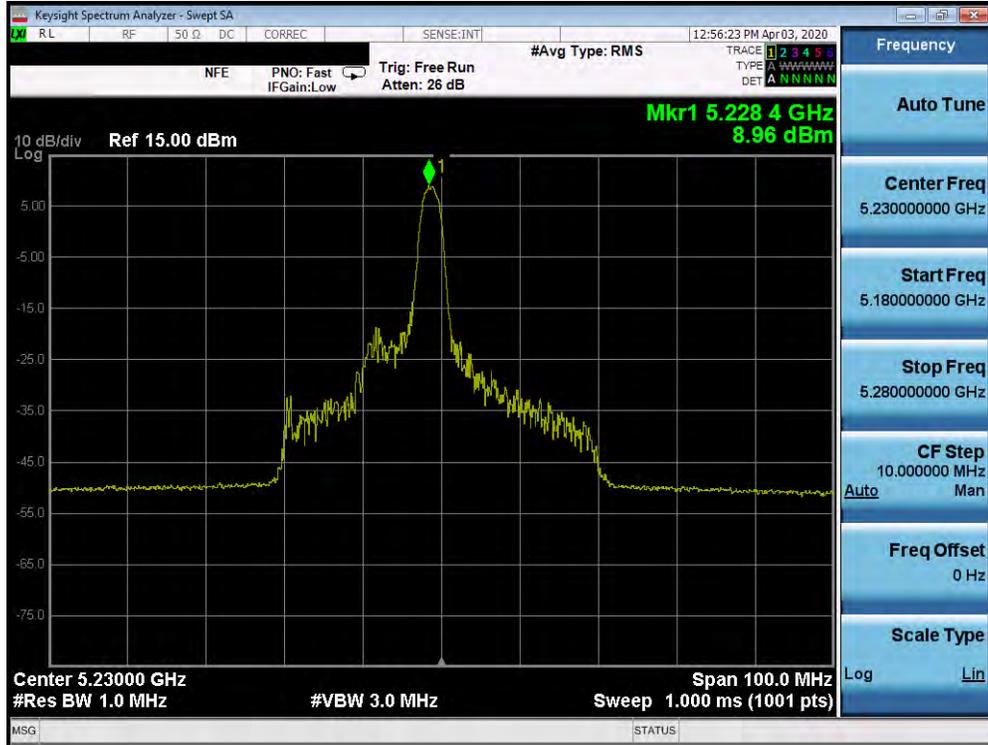


Plot 7-165. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

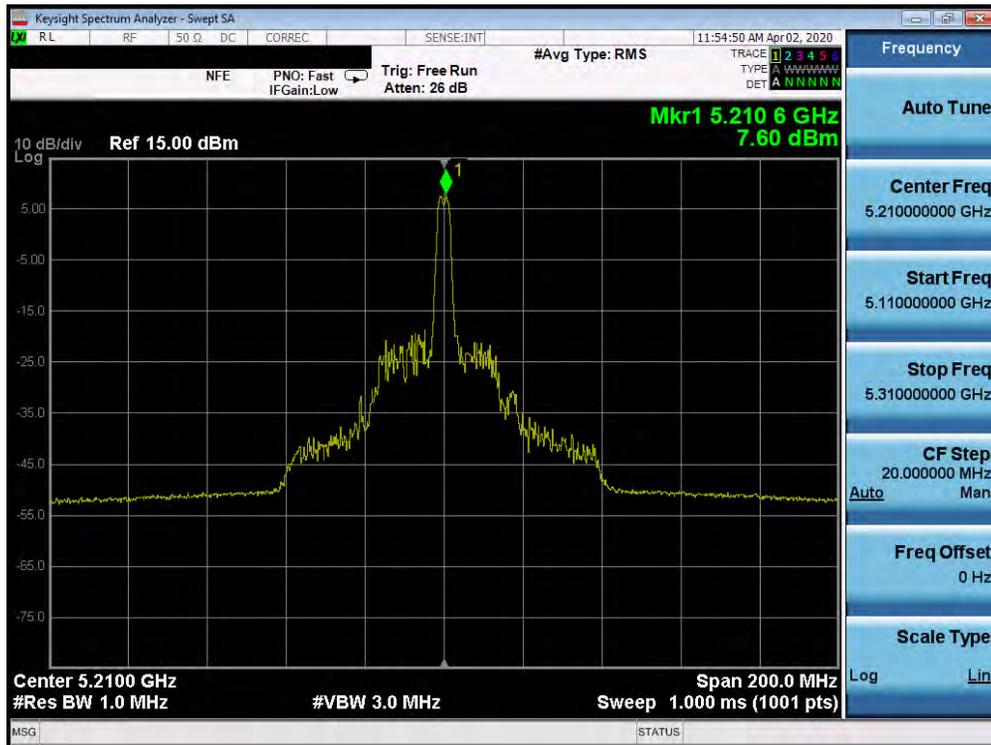


Plot 7-166. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 134 of 299

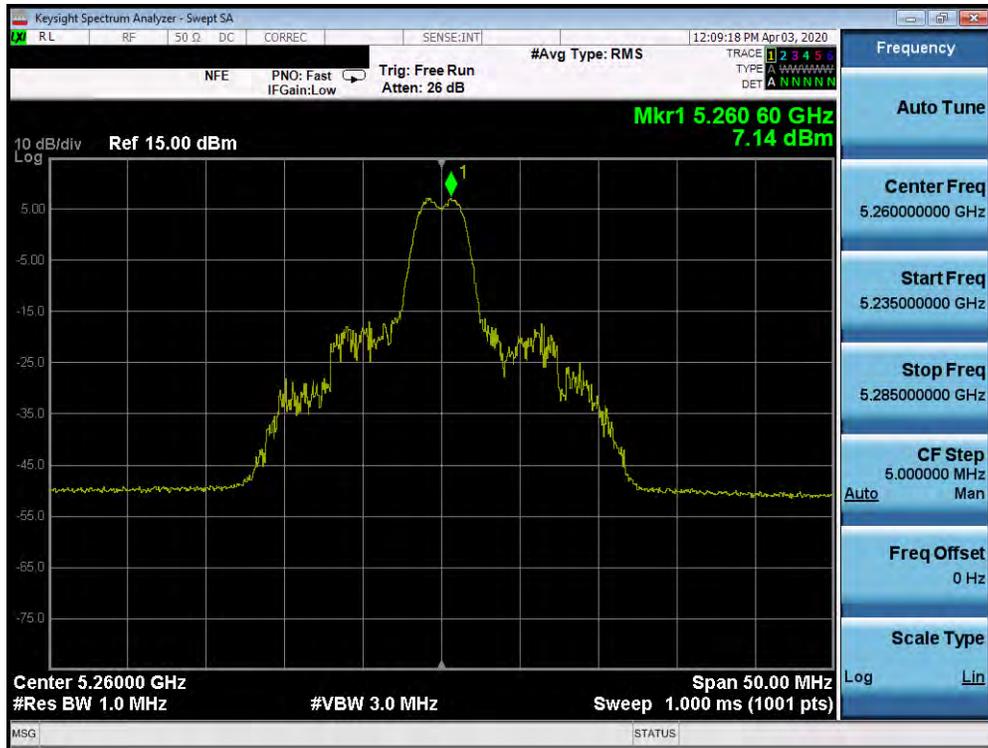


Plot 7-167. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

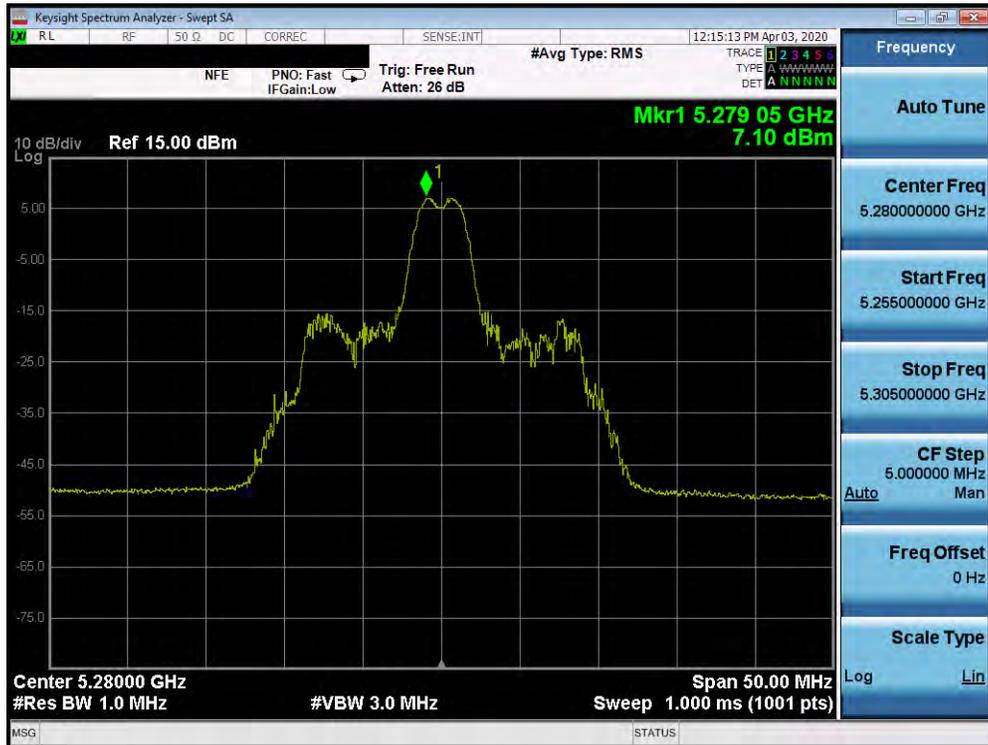


Plot 7-168. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 135 of 299

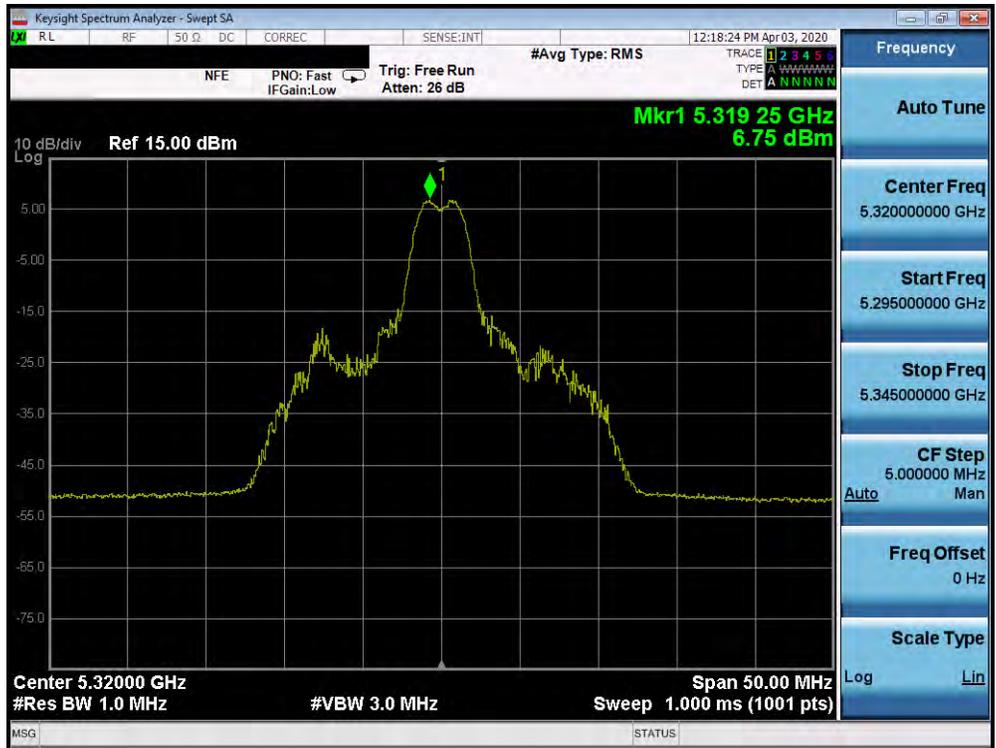


Plot 7-169. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

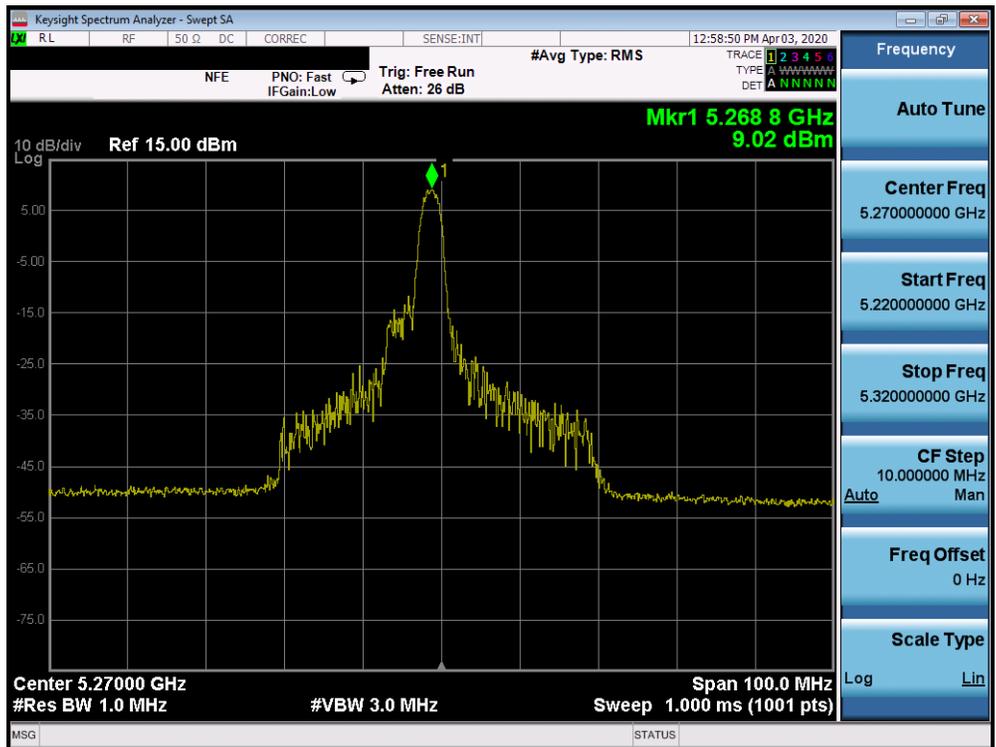


Plot 7-170. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 136 of 299

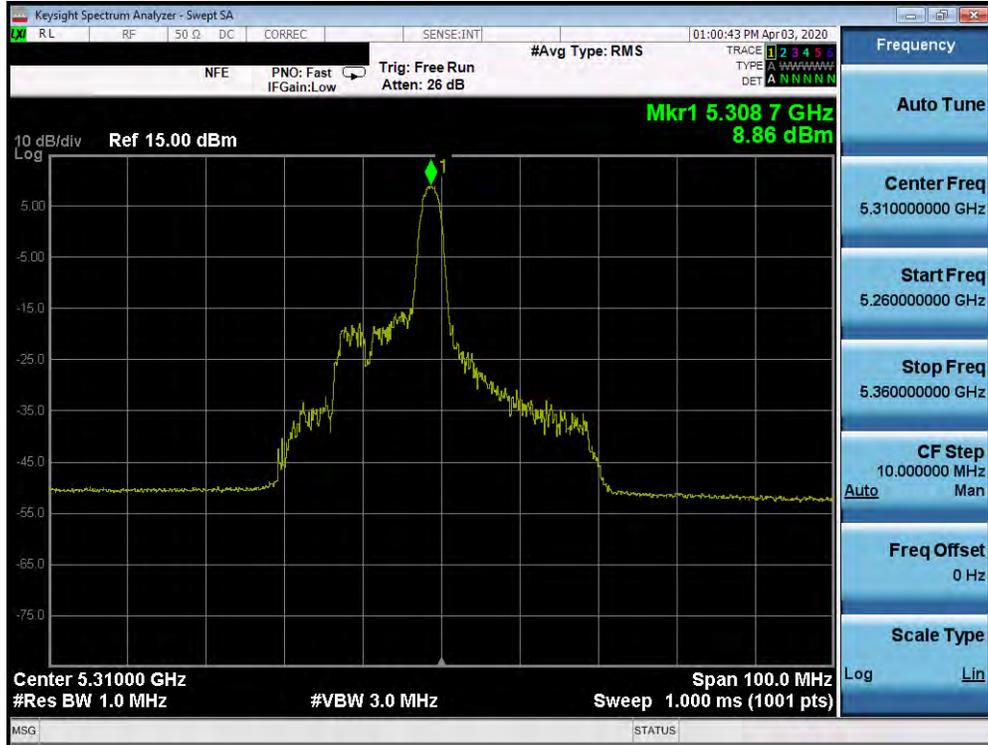


Plot 7-171. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)



Plot 7-172. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 137 of 299

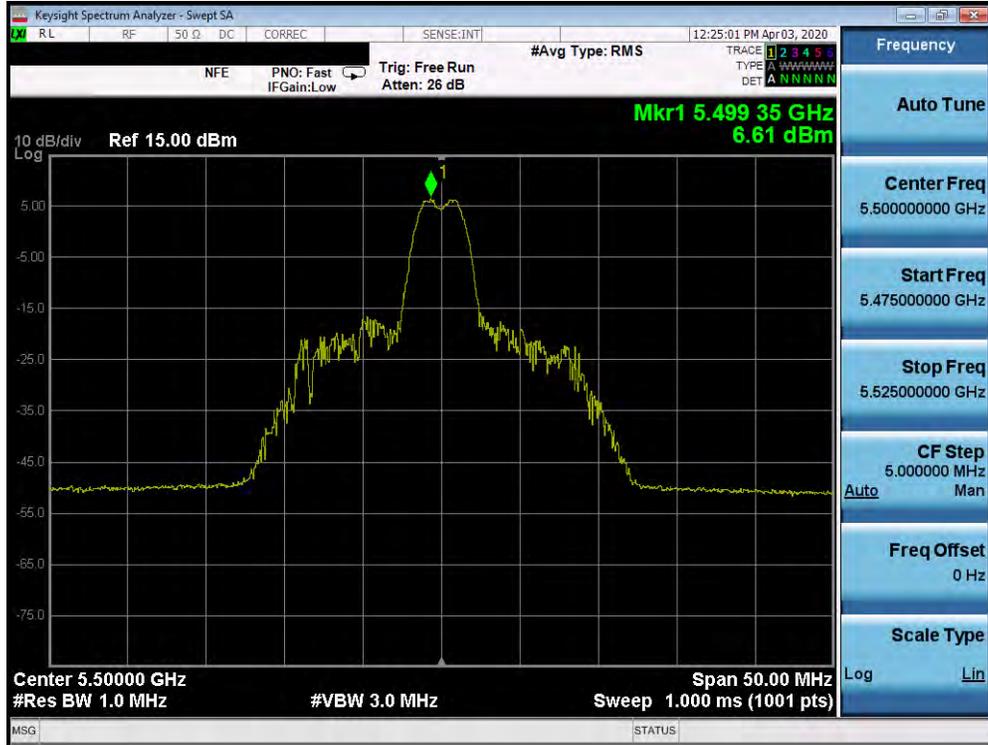


Plot 7-173. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)

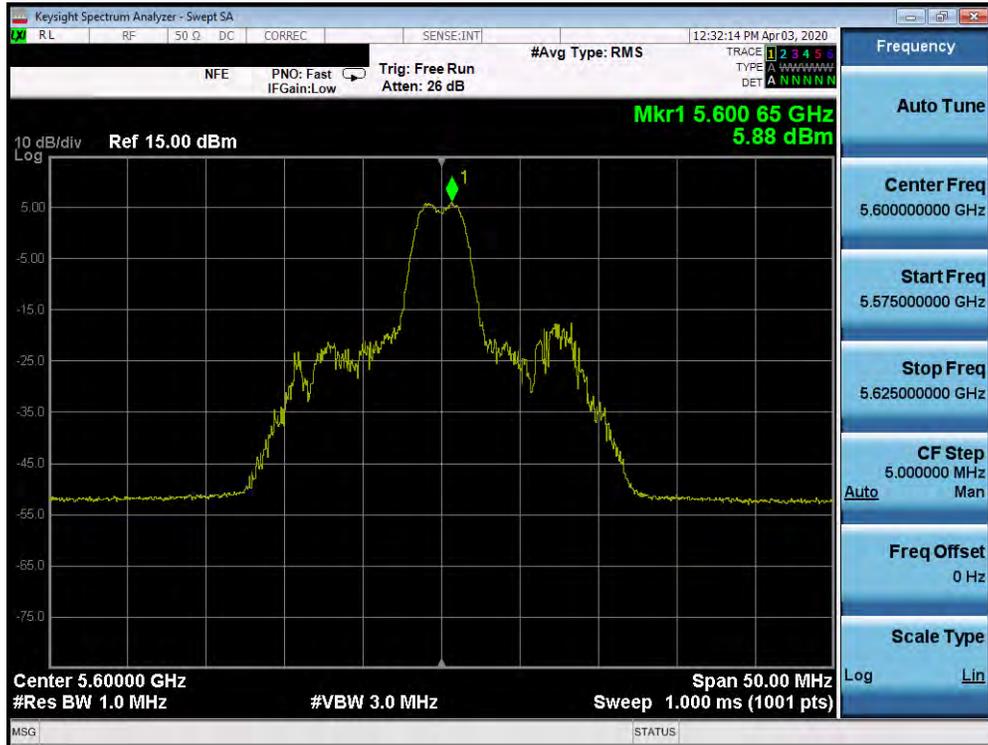


Plot 7-174. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 138 of 299

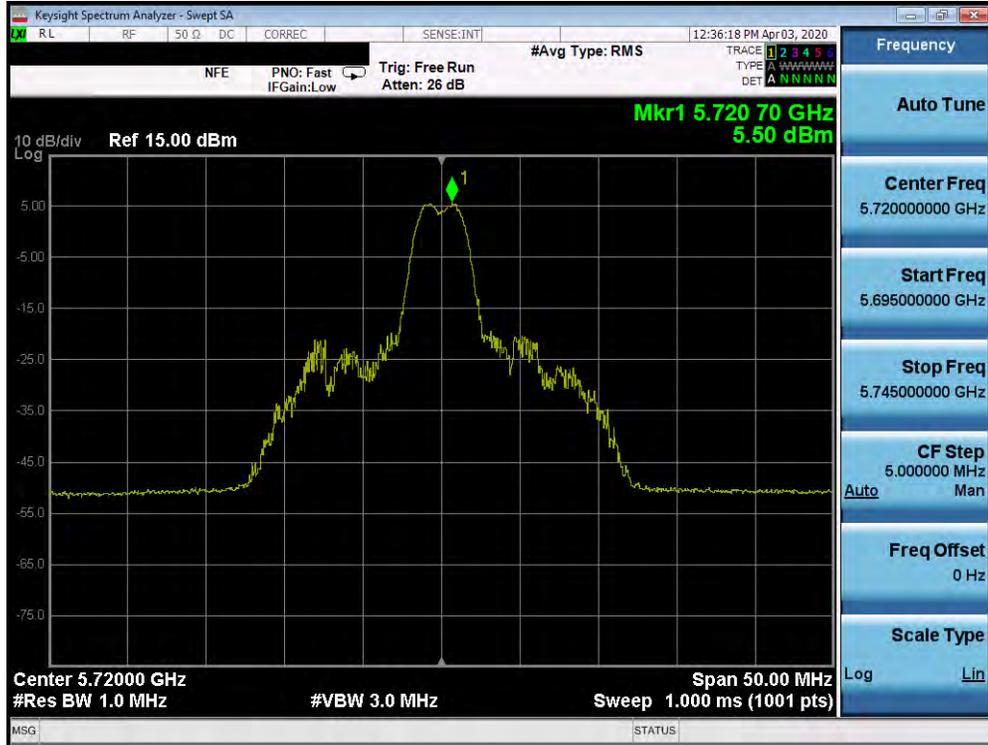


Plot 7-175. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)



Plot 7-176. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 139 of 299

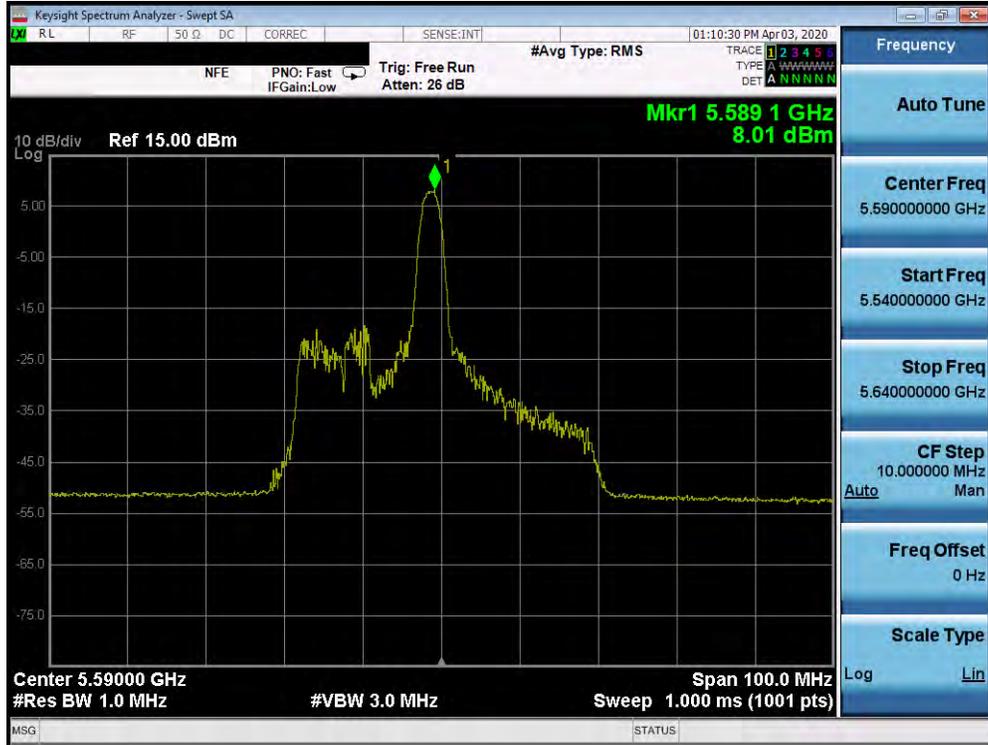


Plot 7-177. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)



Plot 7-178. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 140 of 299

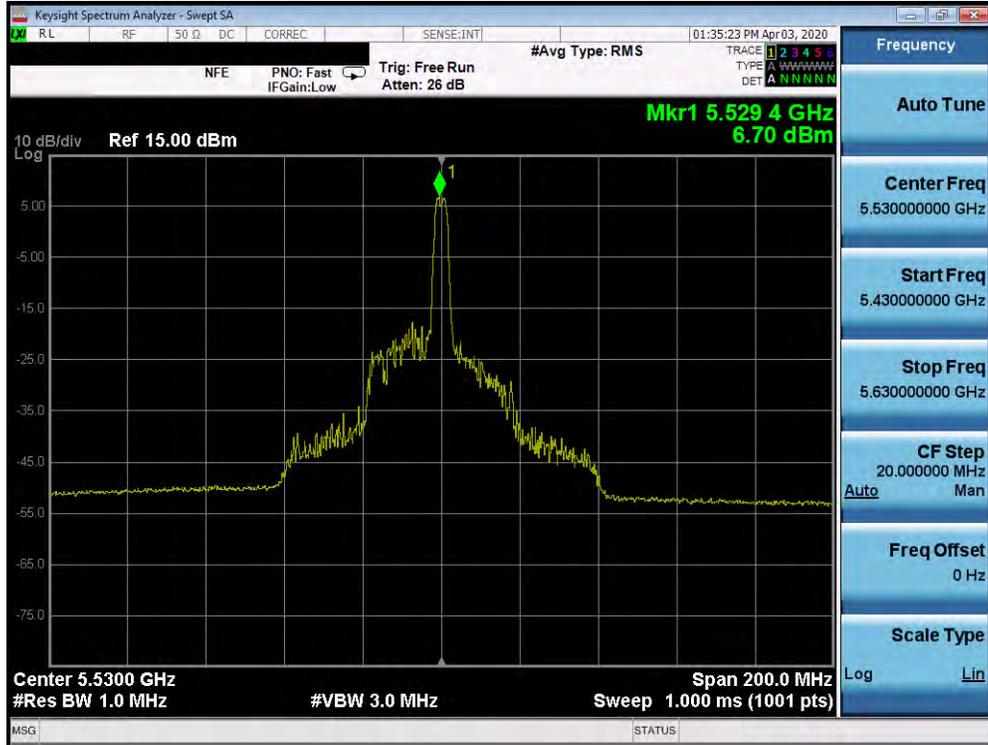


Plot 7-179. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

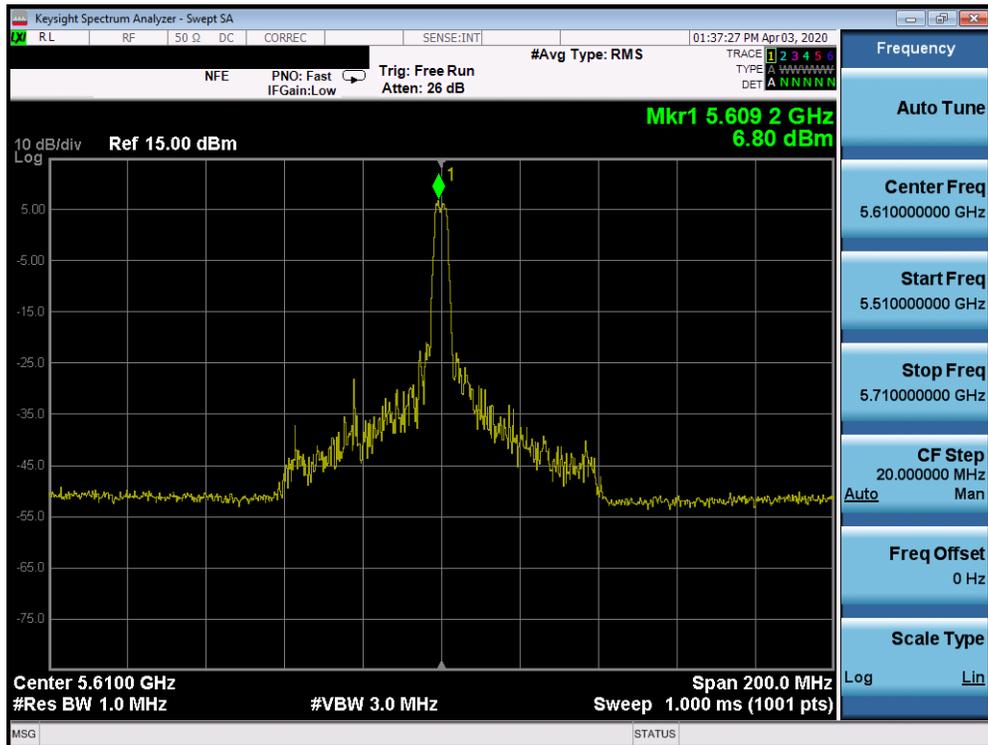


Plot 7-180. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 141 of 299

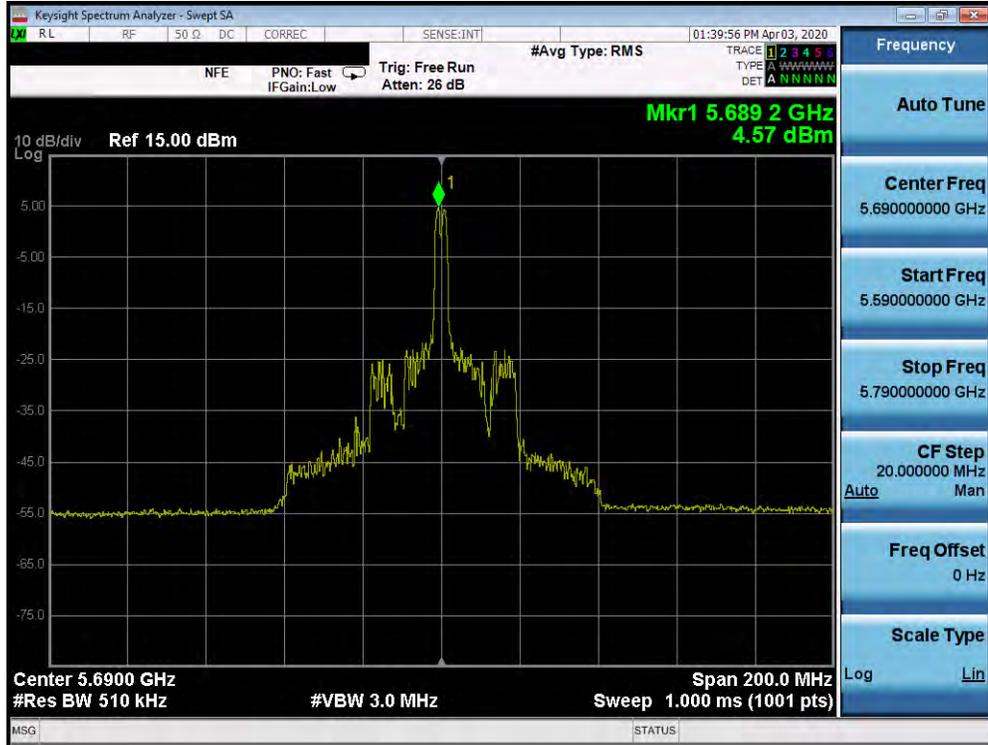


Plot 7-181. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)



Plot 7-182. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 142 of 299



Plot 7-183. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 143 of 299

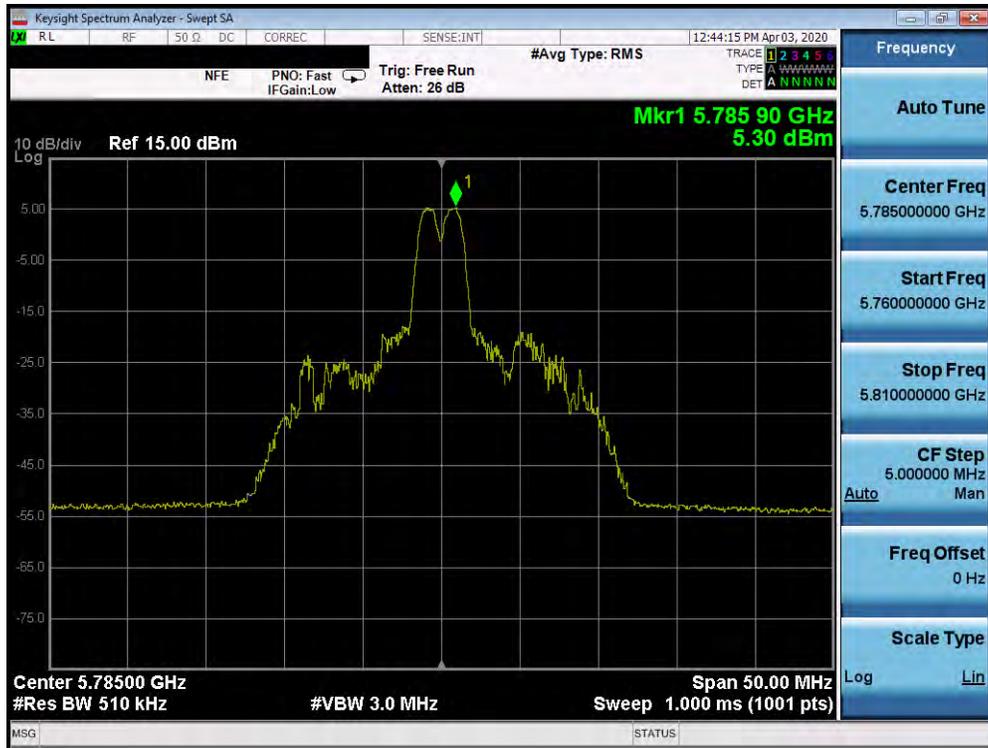
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Measured Power Density [dBm]	Max Permissible Power Density	Margin [dB]
<b>Band 3</b>	5745	149	ax (20MHz)	26T	MCS0	5.56	30.00	-24.44
	5785	157	ax (20MHz)	26T	MCS0	5.30	30.00	-24.70
	5825	165	ax (20MHz)	26T	MCS0	4.77	30.00	-25.23
	5755	151	ax (40MHz)	26T	MCS0	6.00	30.00	-24.00
	5795	159	ax (40MHz)	26T	MCS0	6.42	30.00	-23.58
	5775	155	ax (80MHz)	26T	MCS0	6.82	30.00	-23.18

**Table 7-59. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (26 Tones)**

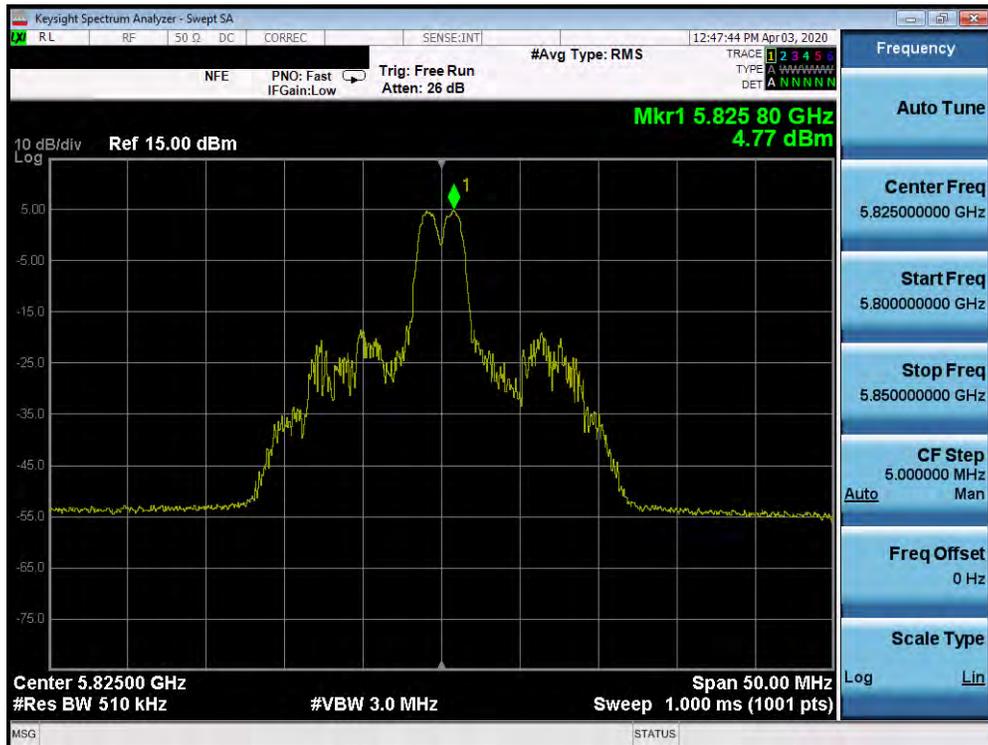


**Plot 7-184. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)**

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 144 of 299

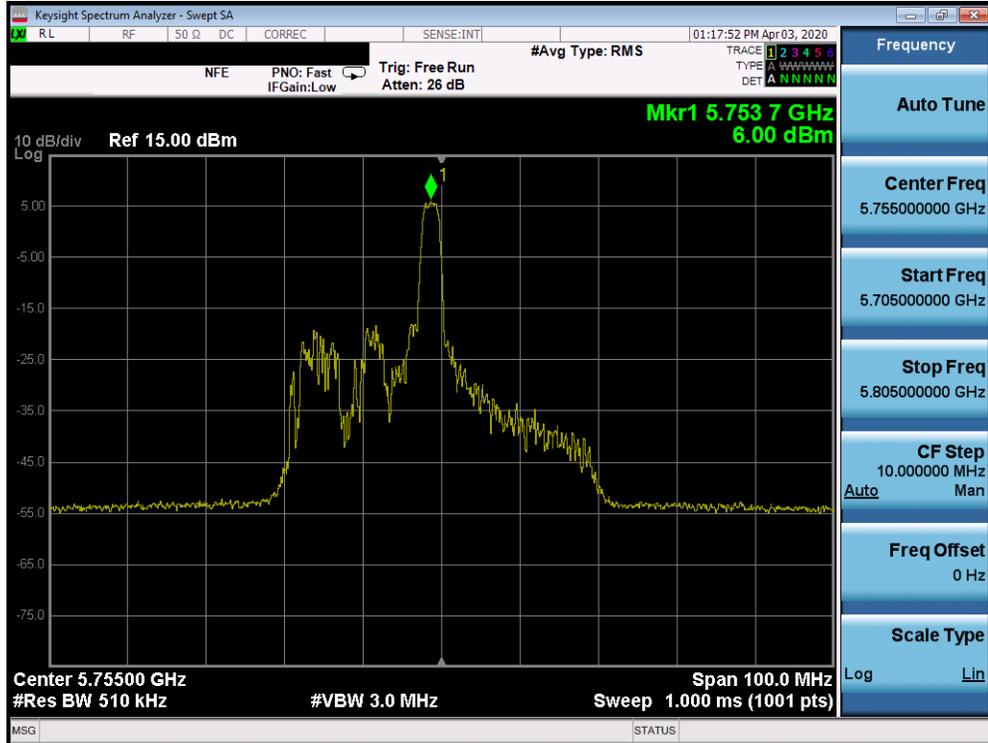


Plot 7-185. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

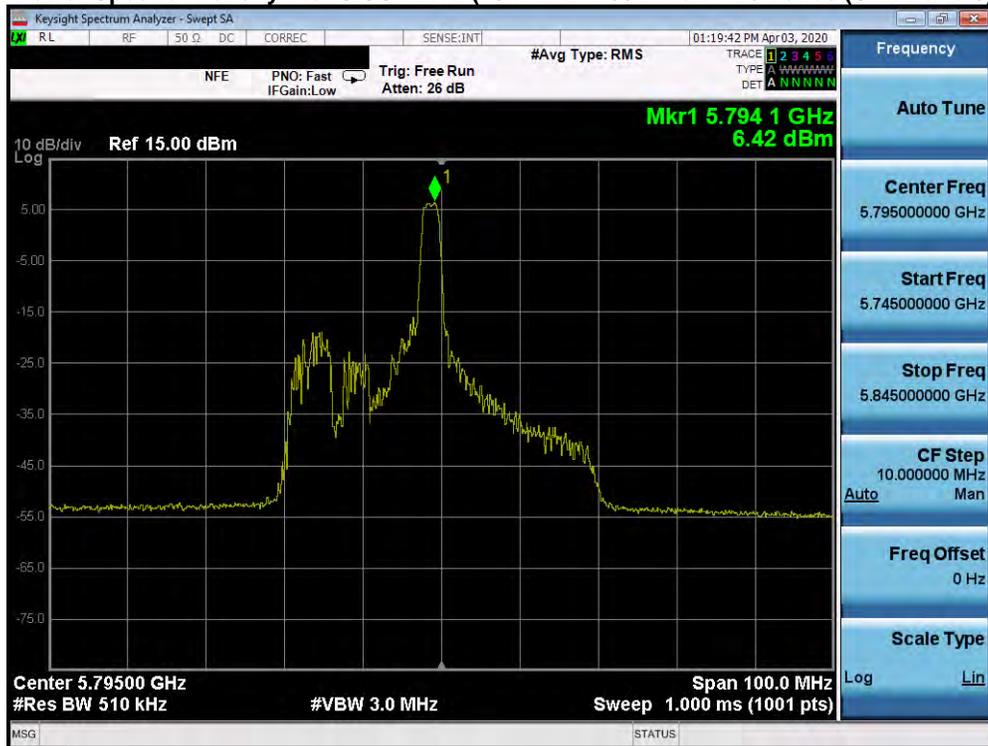


Plot 7-186. Power Spectral Density Plot SISO ANT2 (20 MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset	Page 145 of 299	



Plot 7-187. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)



Plot 7-188. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 146 of 299



Plot 7-189. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 147 of 299

### SISO Antenna-2 Power Spectral Density Measurements (Full Tones)

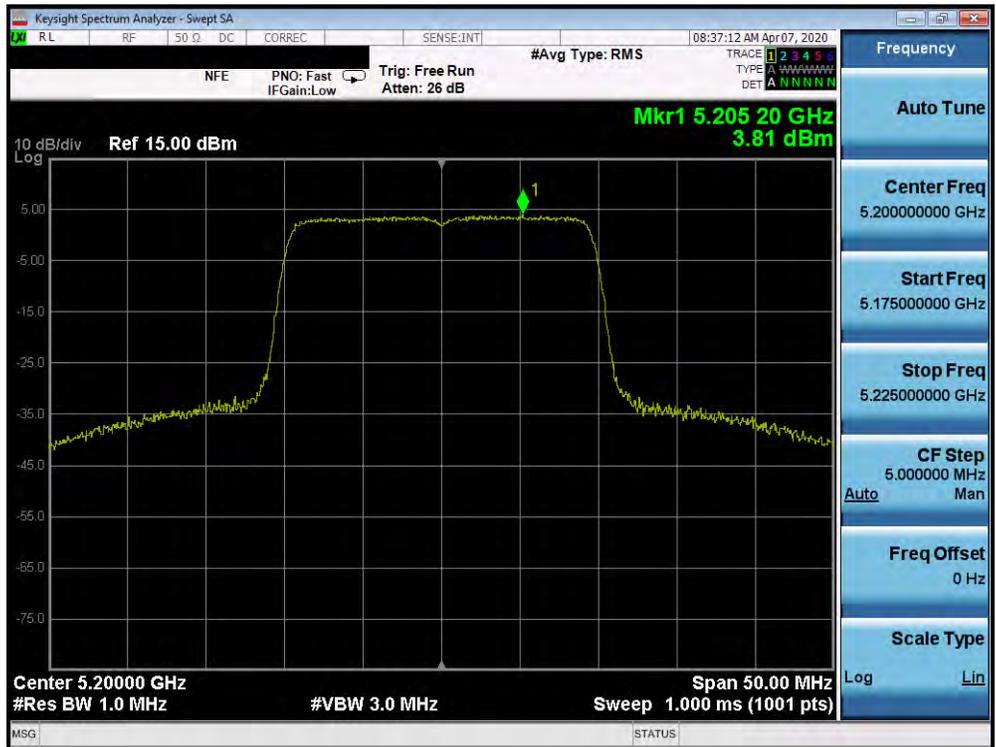
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Measured Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242T	1.62	11.0	-9.38
	5200	40	ax (20MHz)	242T	3.81	11.0	-7.19
	5240	48	ax (20MHz)	242T	3.81	11.0	-7.19
	5190	38	ax (40MHz)	484T	-3.10	11.0	-14.10
	5230	46	ax (40MHz)	484T	0.81	11.0	-10.19
	5210	42	ax (80MHz)	996T	-9.11	11.0	-20.11
Band 2A	5260	52	ax (20MHz)	242T	3.33	11.0	-7.67
	5280	56	ax (20MHz)	242T	3.38	11.0	-7.62
	5320	64	ax (20MHz)	242T	1.95	11.0	-9.05
	5270	54	ax (40MHz)	484T	0.31	11.0	-10.69
	5310	62	ax (40MHz)	484T	-6.10	11.0	-17.10
	5290	58	ax (80MHz)	996T	-10.54	11.0	-21.54
Band 2C	5500	100	ax (20MHz)	242T	2.89	11.0	-8.11
	5600	120	ax (20MHz)	242T	1.83	11.0	-9.17
	5720	144	ax (20MHz)	242T	3.05	11.0	-7.95
	5510	102	ax (40MHz)	484T	-2.13	11.0	-13.13
	5590	118	ax (40MHz)	484T	-0.15	11.0	-11.15
	5710	142	ax (40MHz)	484T	-0.11	11.0	-11.11
	5530	106	ax (80MHz)	996T	-6.13	11.0	-17.13
	5610	122	ax (80MHz)	996T	-4.20	11.0	-15.20
	5690	138	ax (80MHz)	996T	-7.08	11.0	-18.08

**Table 7-60. Conducted Power Spectral Density Measurements SISO ANT2 (Full Tones)**

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 148 of 299

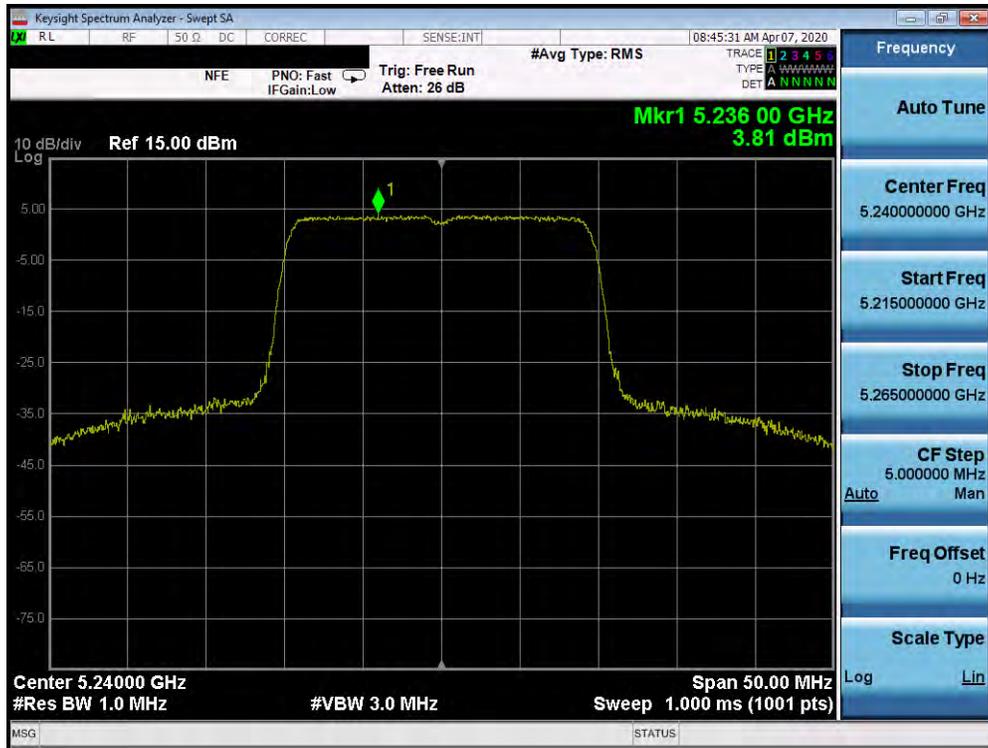


Plot 7-190. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 36)

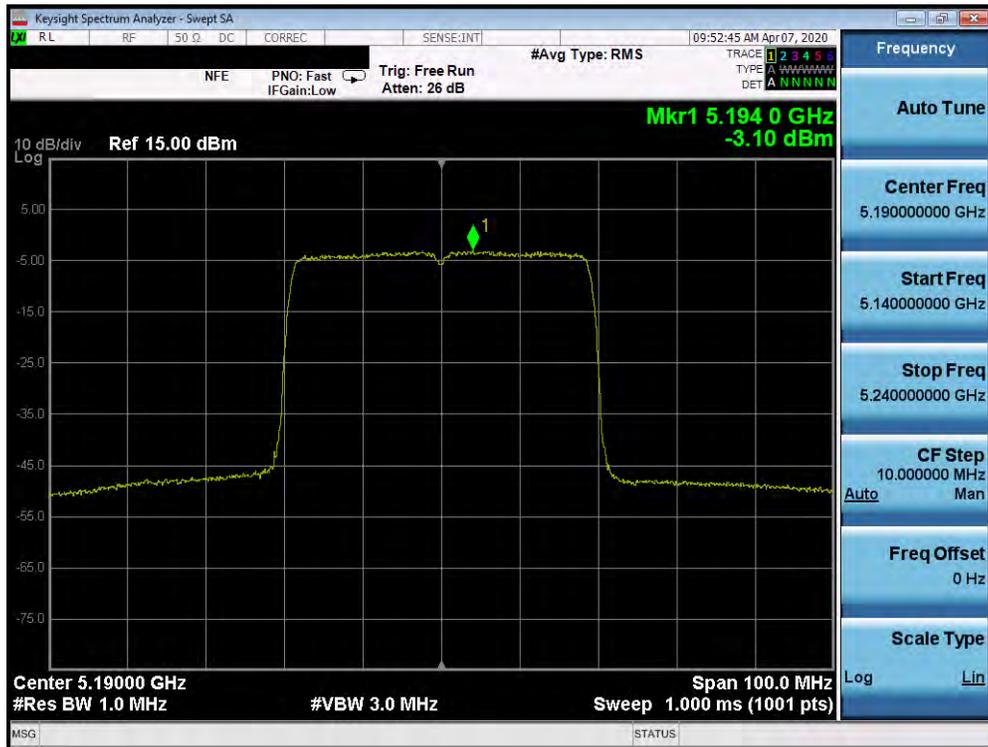


Plot 7-191. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG981V	<b>PCTEST</b> Proud to be part of Samsung	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 149 of 299

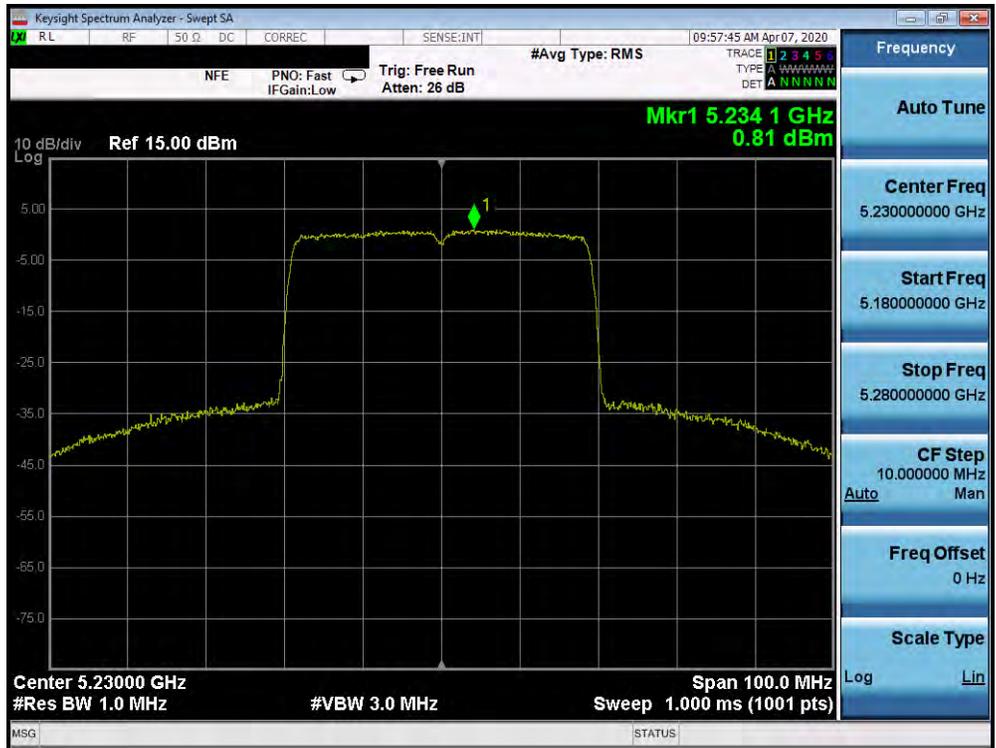


Plot 7-192. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 48)

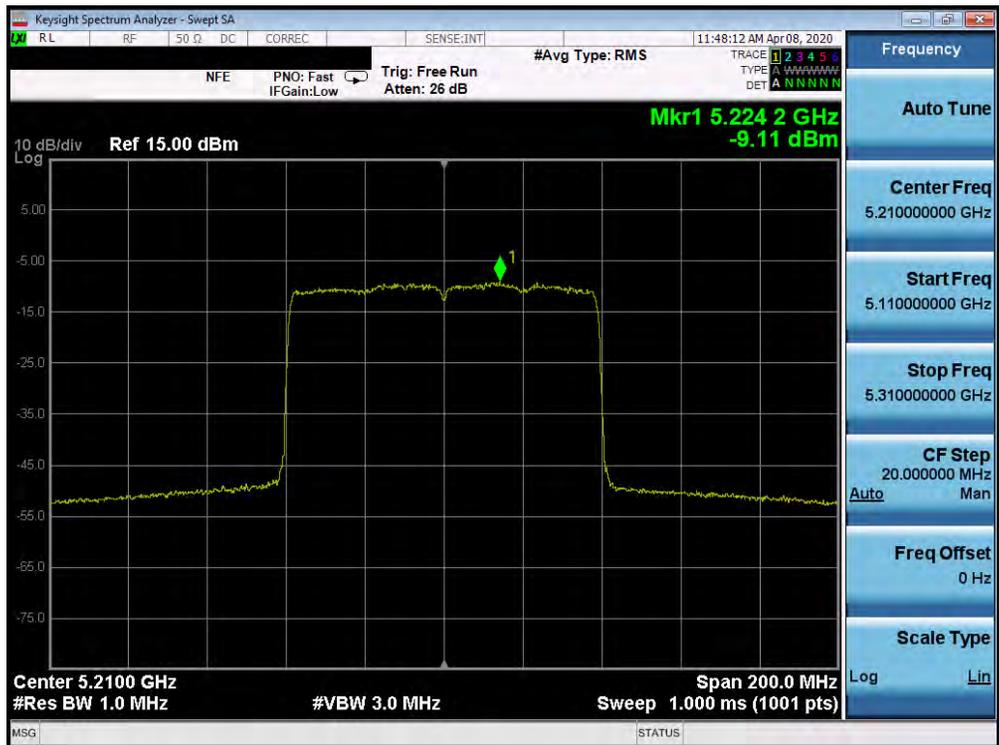


Plot 7-193. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 150 of 299

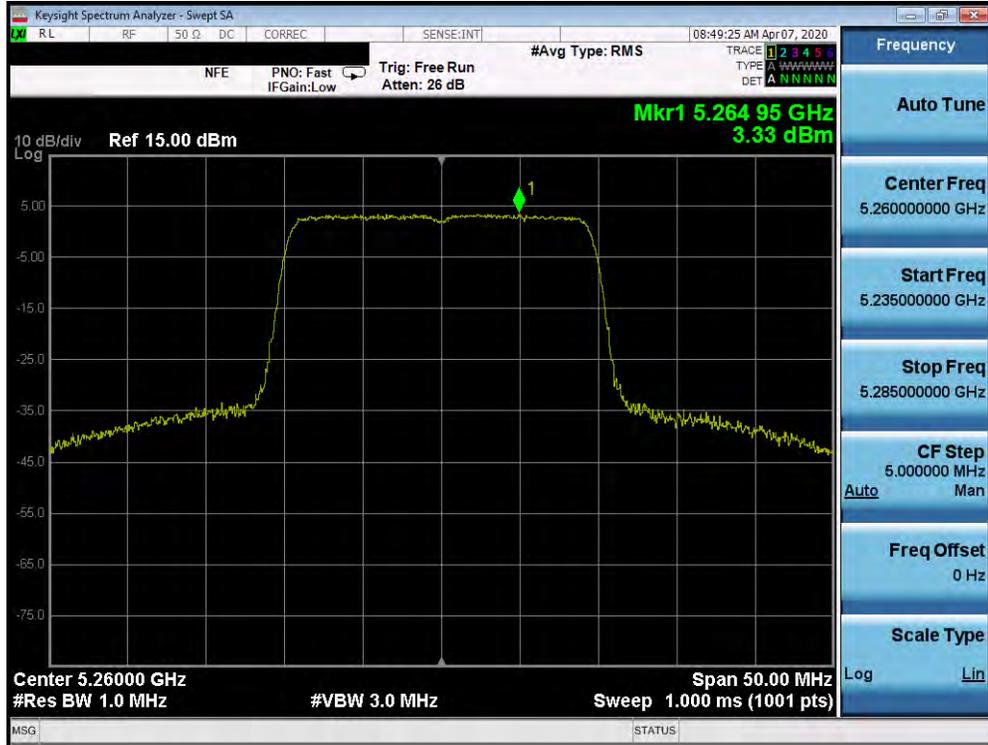


Plot 7-194. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)

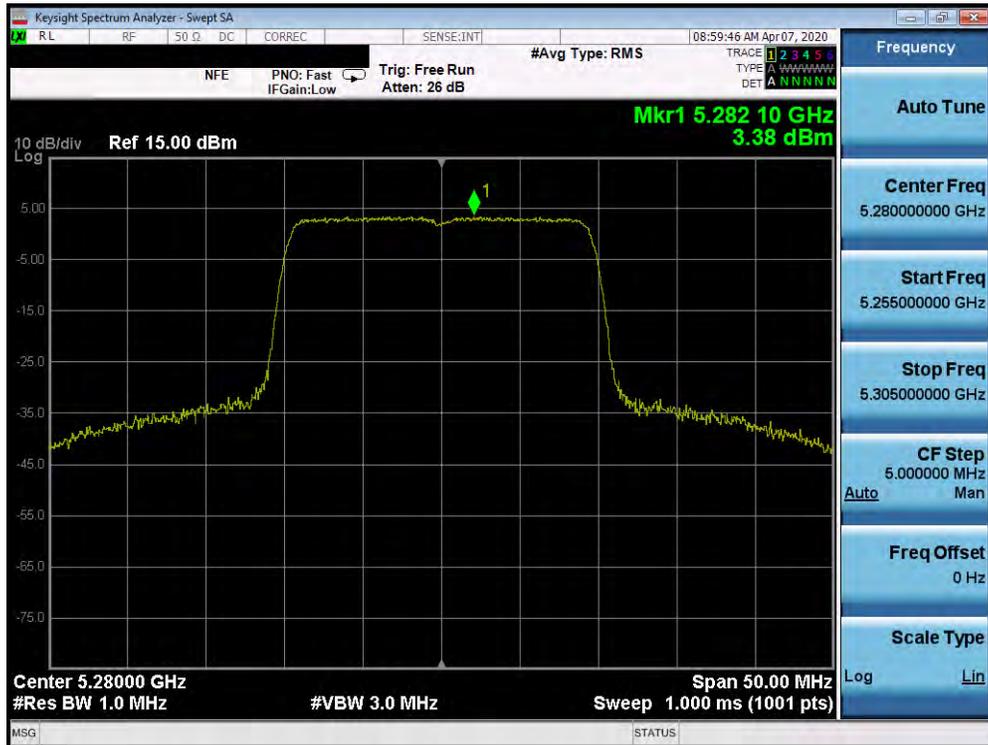


Plot 7-195. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 151 of 299

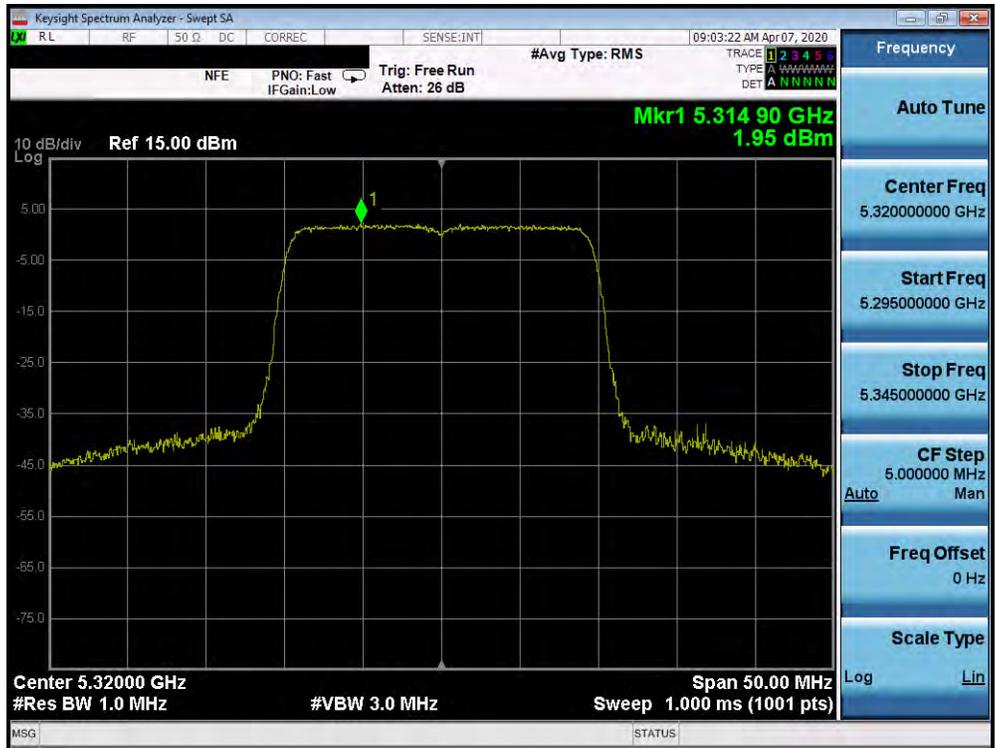


Plot 7-196. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 52)

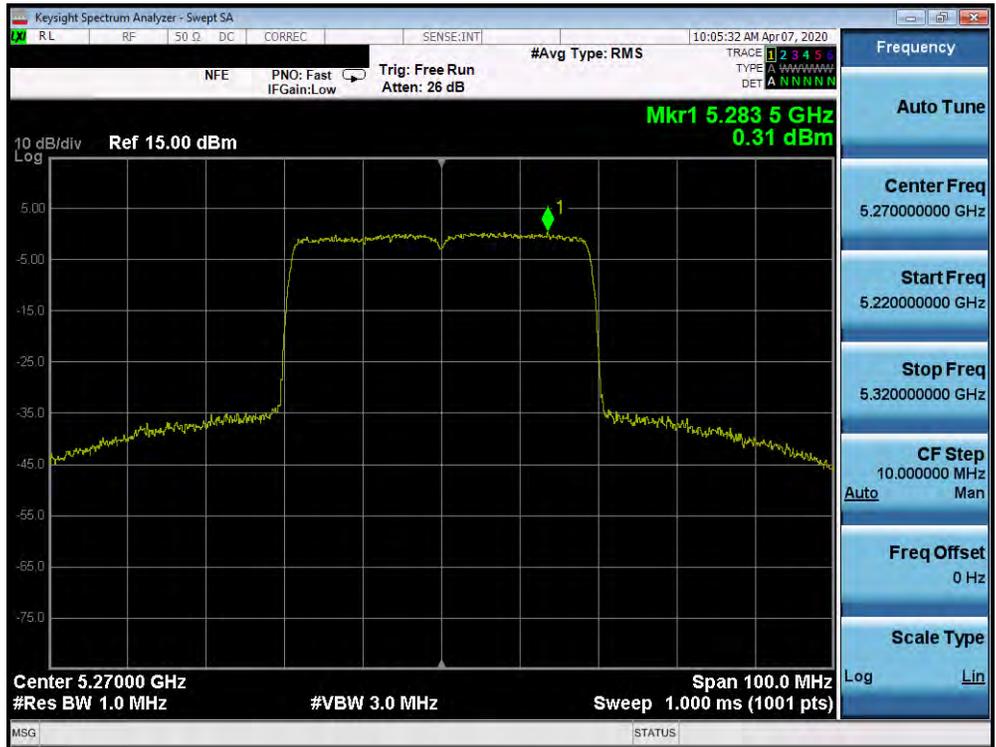


Plot 7-197. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 152 of 299

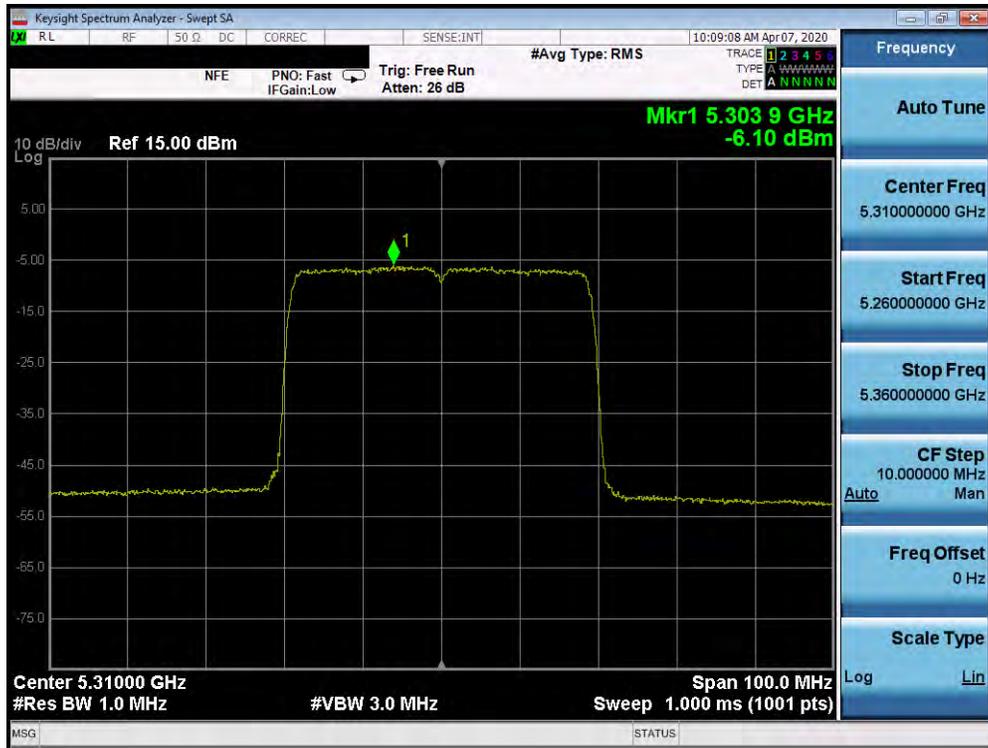


Plot 7-198. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 64)

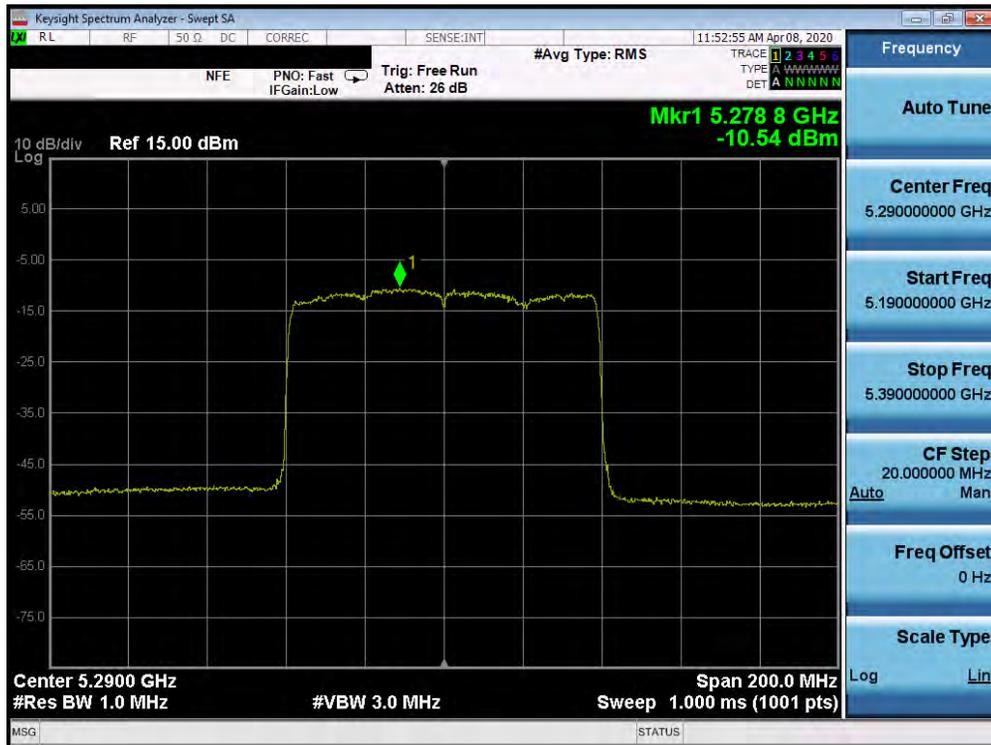


Plot 7-199. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 153 of 299

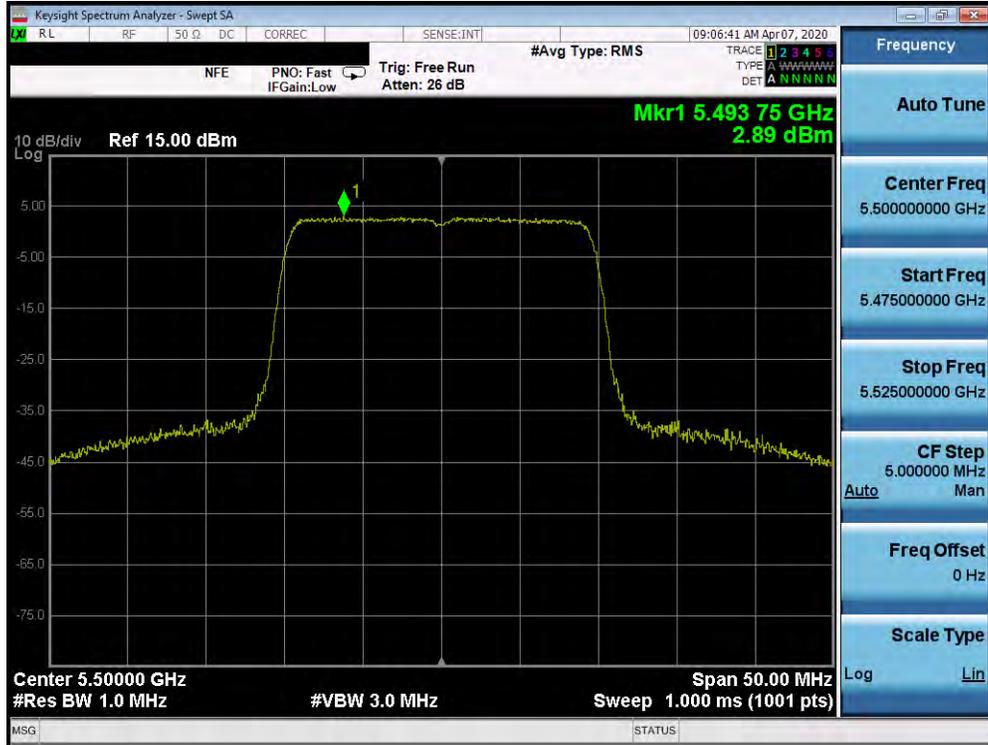


Plot 7-200. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 62)

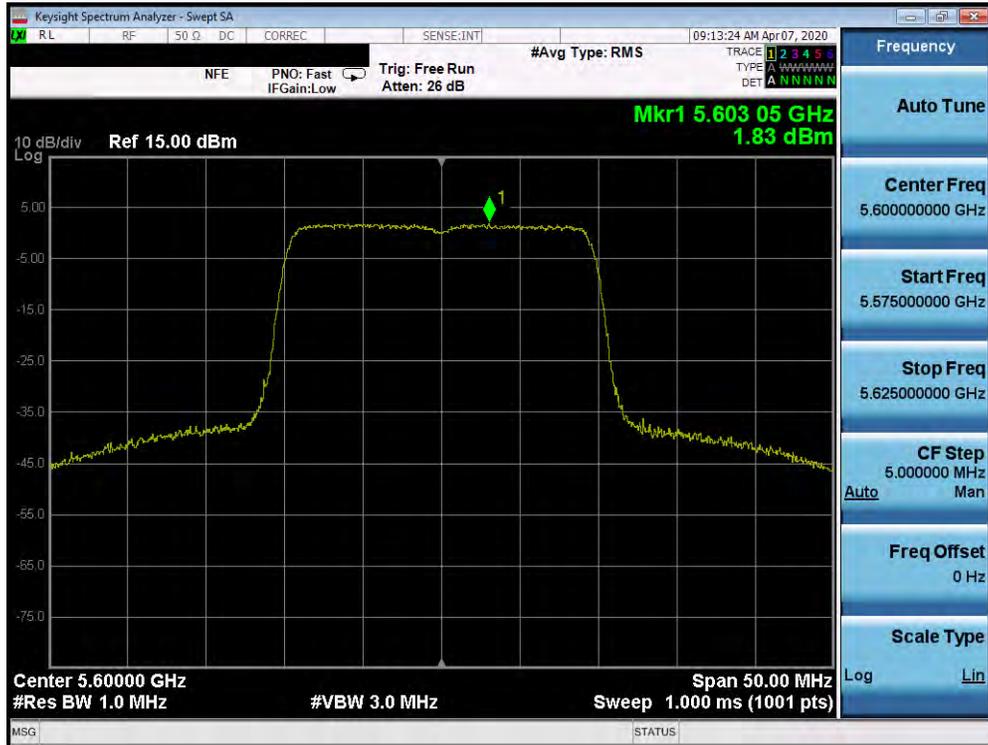


Plot 7-201. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 154 of 299

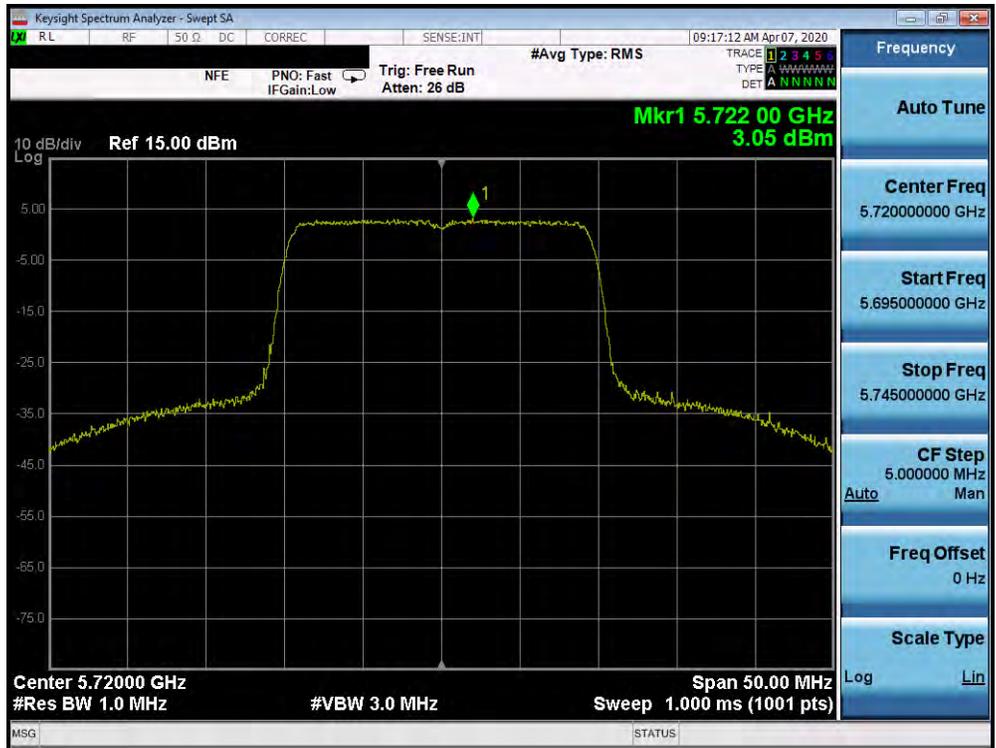


Plot 7-202. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 100)

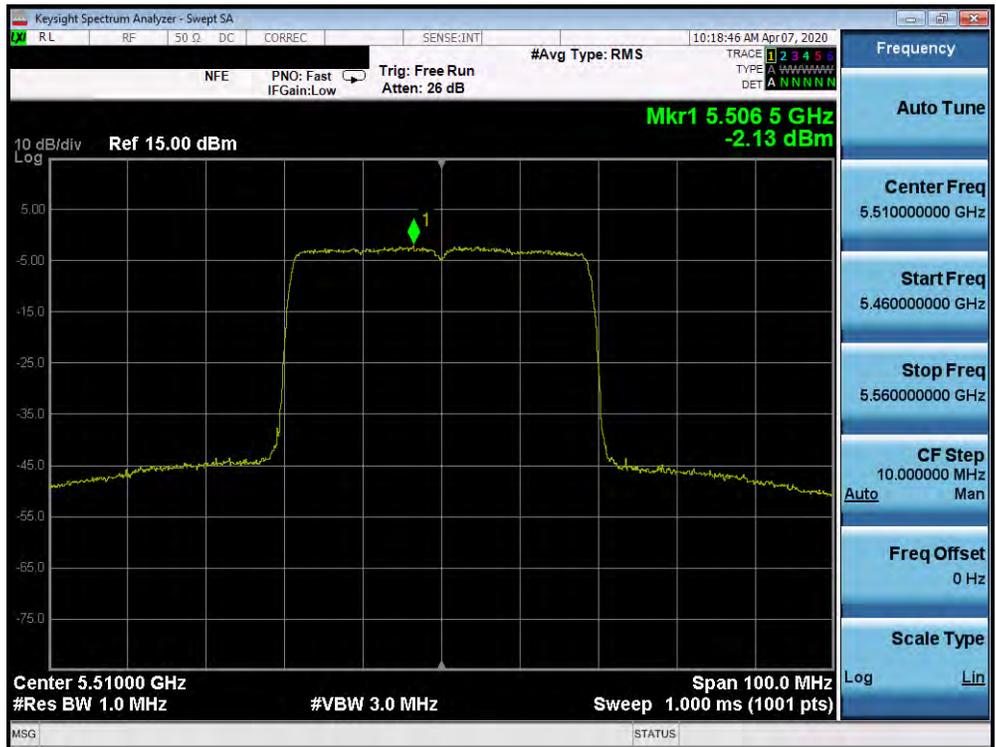


Plot 7-203. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 155 of 299

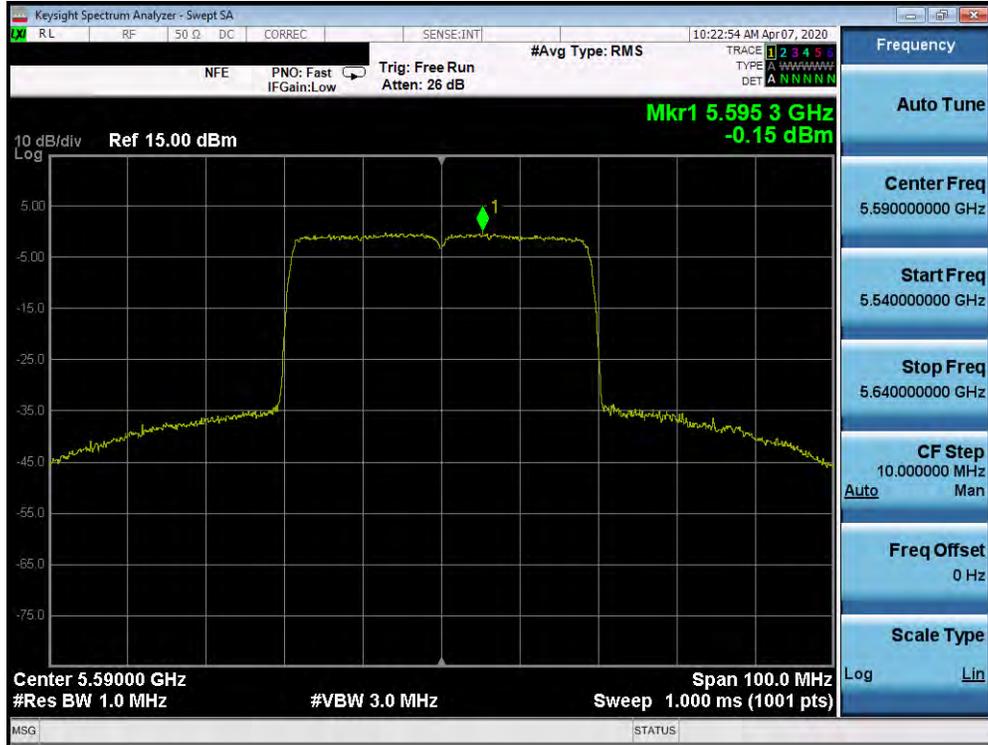


Plot 7-204. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 144)

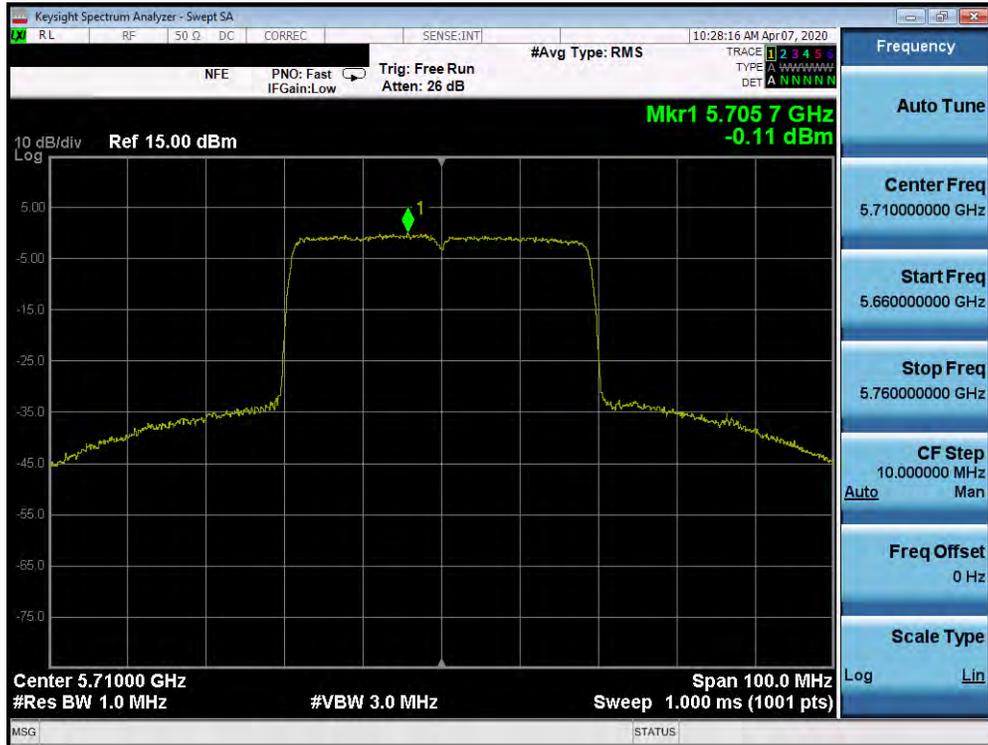


Plot 7-205. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 156 of 299

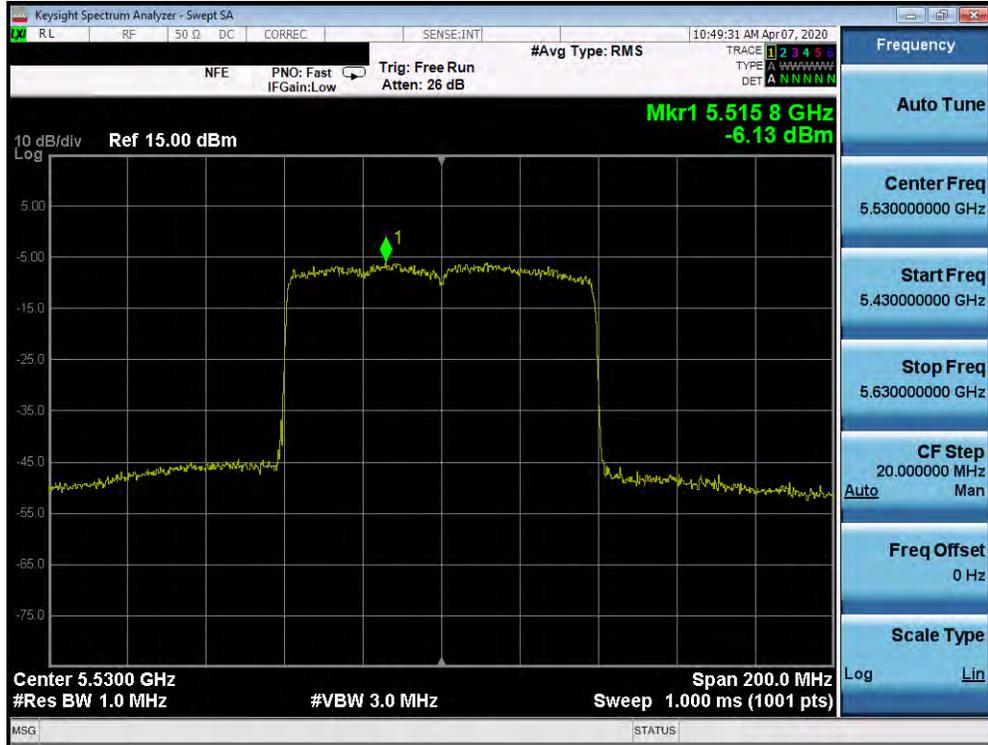


Plot 7-206. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 118)



Plot 7-207. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 157 of 299

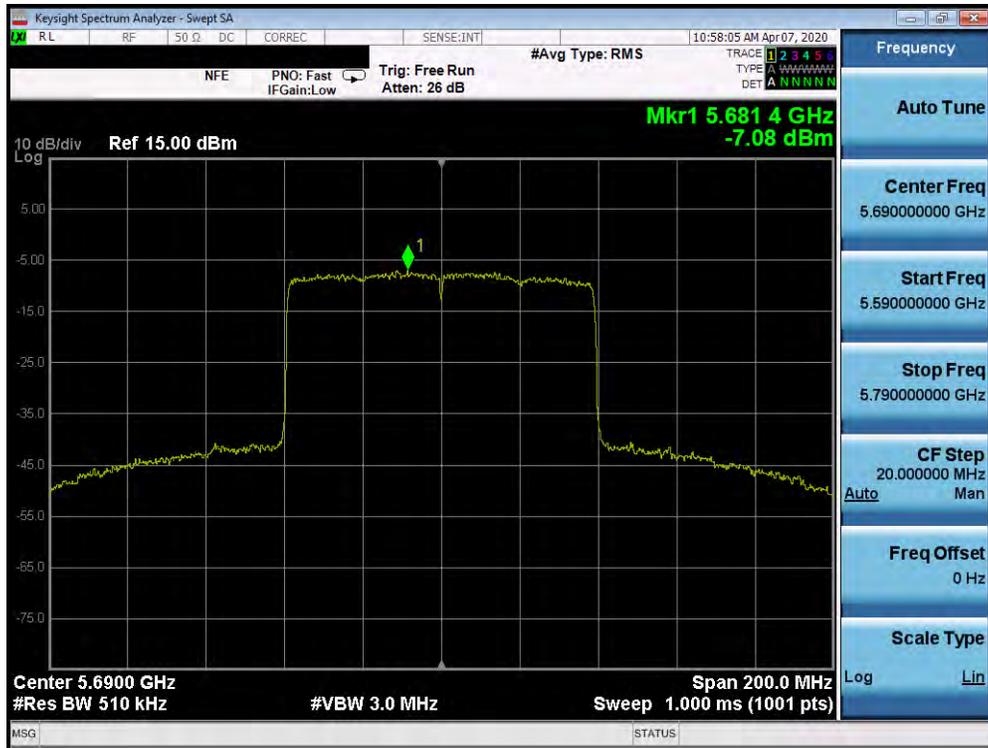


Plot 7-208. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 106)



Plot 7-209. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG981V	PCTEST Proud to be part of Samsung	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 158 of 299



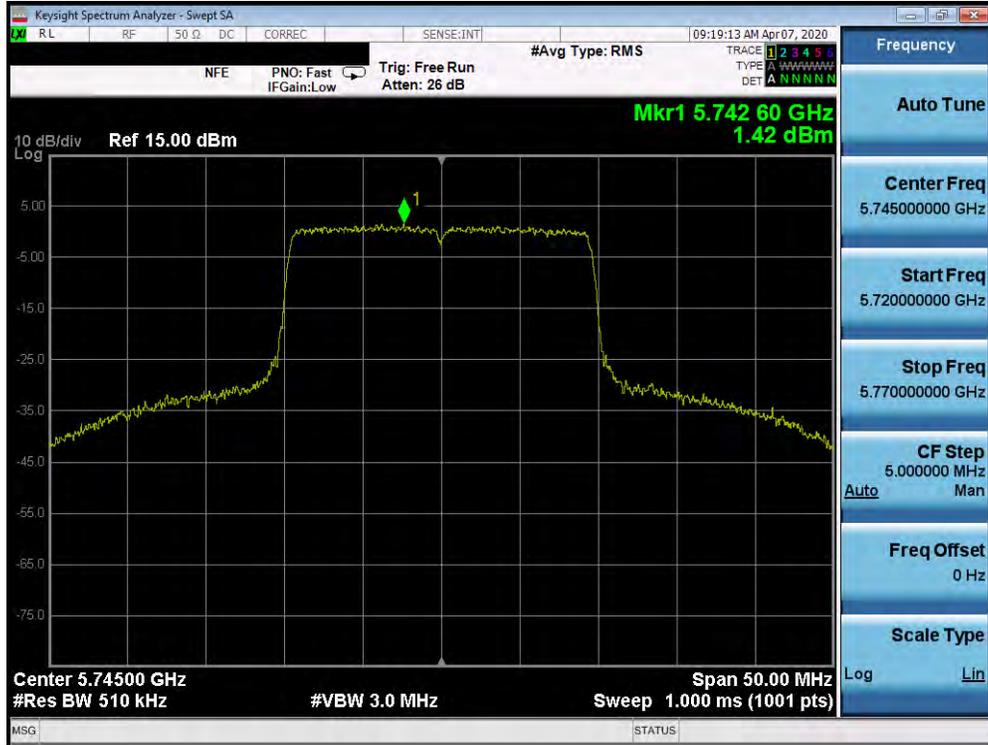
Plot 7-210. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 2C) – Ch. 138)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 159 of 299

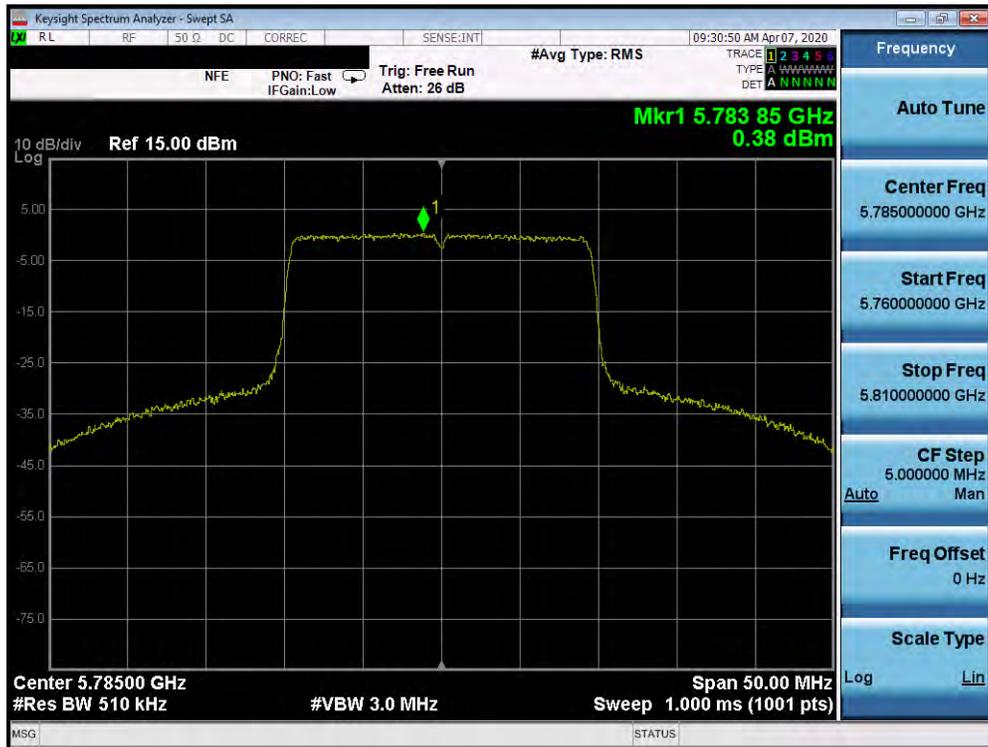
	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Measured Power Density [dBm]	Max Permissible Power Density	Margin [dB]
<b>Band 3</b>	5745	149	ax (20MHz)	242T	1.42	30.00	-28.58
	5785	157	ax (20MHz)	242T	0.38	30.00	-29.62
	5825	165	ax (20MHz)	242T	-0.14	30.00	-30.14
	5755	151	ax (40MHz)	484T	-1.90	30.00	-31.90
	5795	159	ax (40MHz)	484T	-2.52	30.00	-32.52
	5775	155	ax (80MHz)	996T	-3.35	30.00	-33.35

**Table 7-61. Band 3 Conducted Power Spectral Density Measurements SISO ANT2 (Full Tones)**

FCC ID: A3LSMG981V		<b>MEASUREMENT REPORT (CERTIFICATION)</b>			<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M2003090034-08.A3L	<b>Test Dates:</b> 3/17 – 5/8/2020	<b>EUT Type:</b> Portable Handset			Page 160 of 299

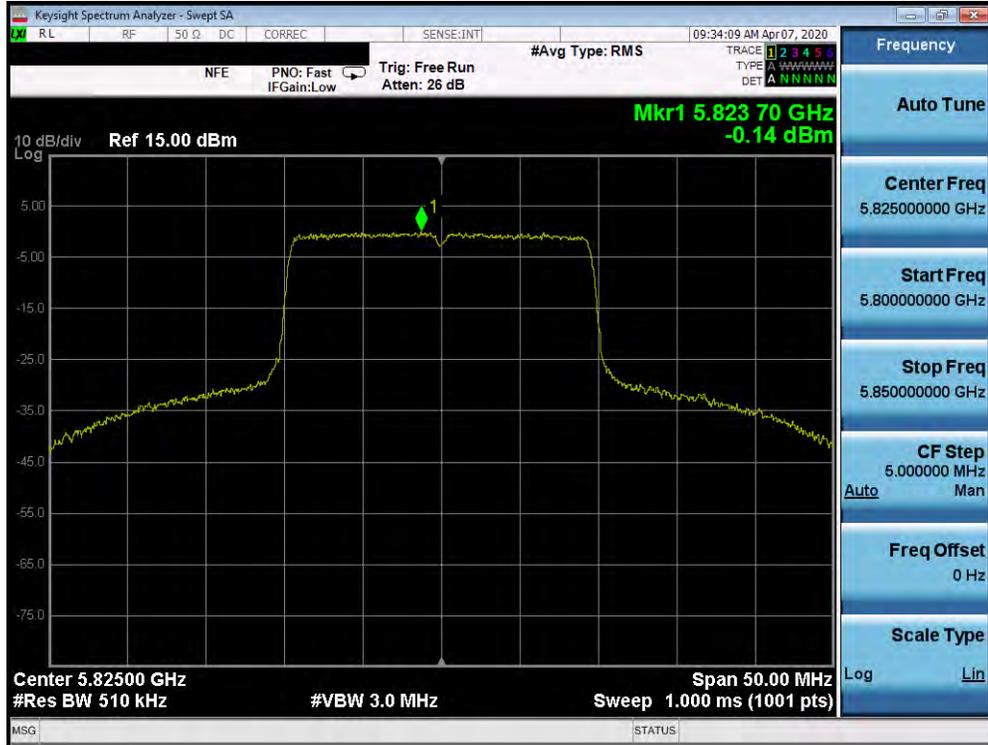


Plot 7-211. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 149)



Plot 7-212. Power Spectral Density Plot SISO ANT2 (20MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 157)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 161 of 299

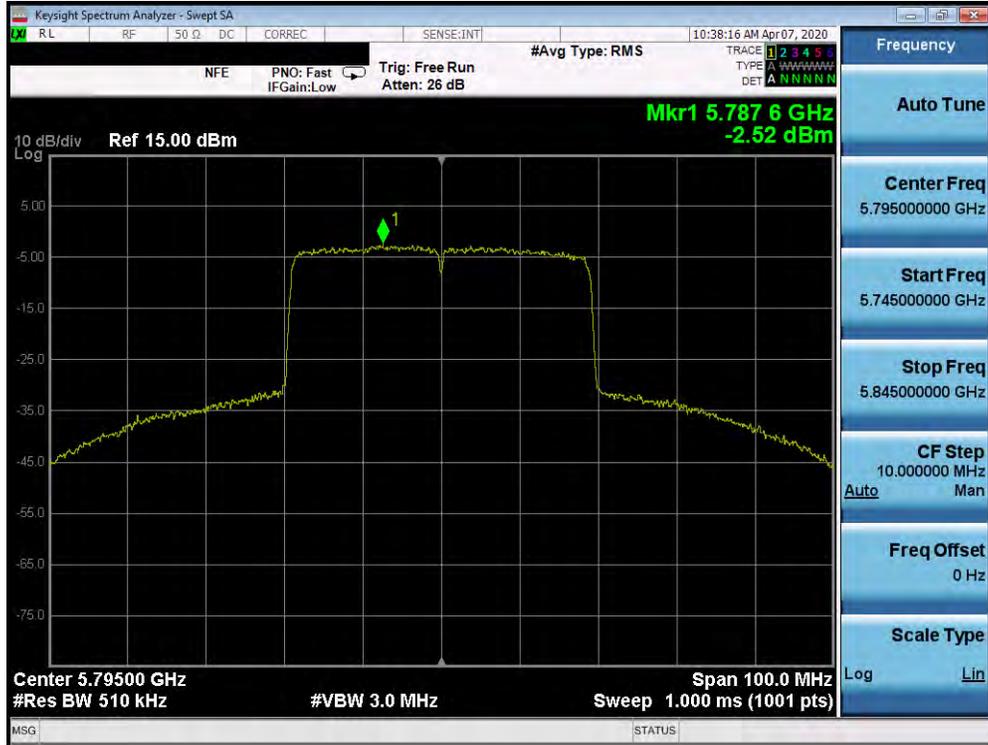


Plot 7-213. Power Spectral Density Plot SISO ANT2 (20 MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 165)

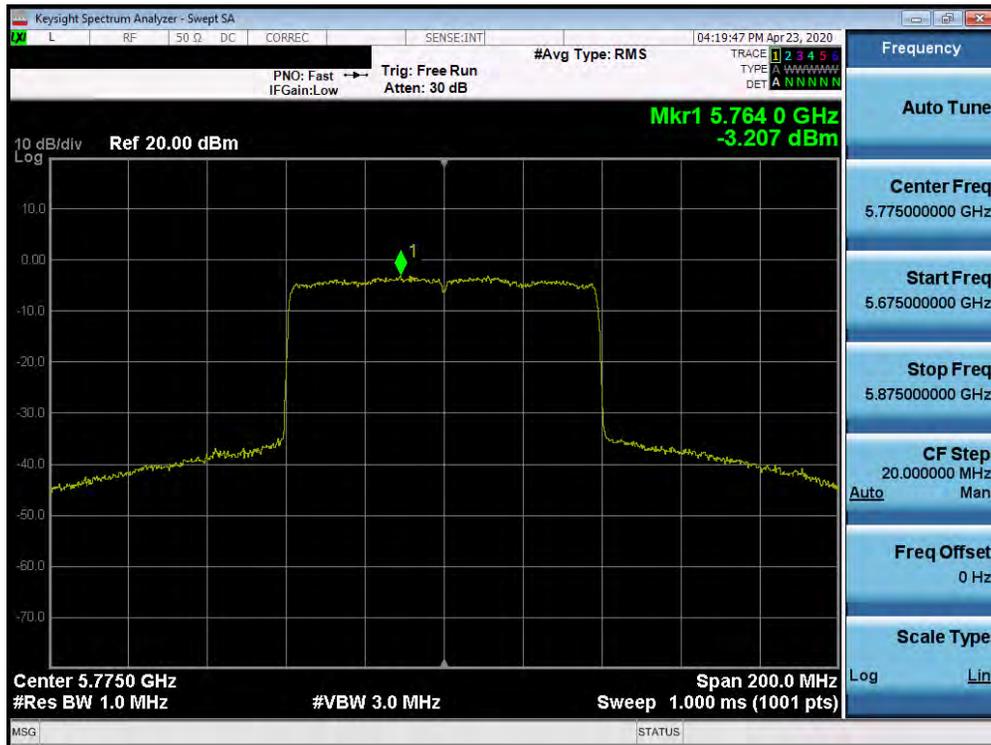


Plot 7-214. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 151)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 162 of 299



Plot 7-215. Power Spectral Density Plot SISO ANT2 (40MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 159)



Plot 7-216. Power Spectral Density Plot SISO ANT2 (80MHz BW 802.11ax – Full Tones (UNII Band 3) – Ch. 155)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 163 of 299

## Summed MIMO Power Spectral Density Measurements (26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	26T	MCS0	4.18	4.22	7.21	11.00	-3.79
	5200	40	ax (20MHz)	26T	MCS0	4.55	4.65	7.61	11.00	-3.39
	5240	48	ax (20MHz)	26T	MCS0	5.59	4.69	8.17	11.00	-2.83
	5190	38	ax (40MHz)	26T	MCS0	6.64	7.31	10.00	11.00	-1.00
	5230	46	ax (40MHz)	26T	MCS0	7.61	6.80	10.23	11.00	-0.77
	5210	42	ax (80MHz)	26T	MCS0	5.02	3.58	7.37	11.00	-3.63
Band 2A	5260	52	ax (20MHz)	26T	MCS0	4.45	4.44	7.46	11.00	-3.54
	5280	56	ax (20MHz)	26T	MCS0	4.45	4.43	7.45	11.00	-3.55
	5320	64	ax (20MHz)	26T	MCS0	4.16	3.53	6.87	11.00	-4.13
	5270	54	ax (40MHz)	26T	MCS0	6.56	6.13	9.36	11.00	-1.64
	5310	62	ax (40MHz)	26T	MCS0	6.46	6.26	9.37	11.00	-1.63
	5290	58	ax (80MHz)	26T	MCS0	5.06	4.17	7.65	11.00	-3.35
Band 2C	5500	100	ax (20MHz)	26T	MCS0	4.44	3.66	7.08	11.00	-3.92
	5600	120	ax (20MHz)	26T	MCS0	3.46	2.49	6.01	11.00	-4.99
	5720	144	ax (20MHz)	26T	MCS0	4.12	2.44	6.37	11.00	-4.63
	5510	102	ax (40MHz)	26T	MCS0	6.80	5.57	9.24	11.00	-1.76
	5590	118	ax (40MHz)	26T	MCS0	5.94	5.07	8.54	11.00	-2.46
	5710	142	ax (40MHz)	26T	MCS0	8.89	4.80	10.32	11.00	-0.68
	5530	106	ax (80MHz)	26T	MCS0	4.85	3.47	7.22	11.00	-3.78
	5610	122	ax (80MHz)	26T	MCS0	4.00	4.27	7.15	11.00	-3.85
5690	138	ax (80MHz)	26T	MCS0	2.13	1.05	4.63	11.00	-6.37	

Table 7-62. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	26T	MCS0	1.35	2.13	4.77	30.00	-25.23
	5785	157	ax (20MHz)	26T	MCS0	1.00	1.56	4.30	30.00	-25.70
	5825	165	ax (20MHz)	26T	MCS0	0.89	0.87	3.89	30.00	-26.11
	5755	151	ax (40MHz)	26T	MCS0	2.88	2.99	5.95	30.00	-24.05
	5795	159	ax (40MHz)	26T	MCS0	2.56	2.90	5.74	30.00	-24.26
	5775	155	ax (80MHz)	26T	MCS0	3.77	3.75	6.77	30.00	-23.23

Table 7-63. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (26 Tones)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 164 of 299

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Power Density [dBm/MHz]	Margin [dB]
Band 1	5180	36	ax (20MHz)	242T	MCS0	-1.87	-1.63	1.26	11.00	-9.74
	5200	40	ax (20MHz)	242T	MCS0	1.72	1.61	4.68	11.00	-6.32
	5240	48	ax (20MHz)	242T	MCS0	1.96	1.91	4.95	11.00	-6.05
	5190	38	ax (40MHz)	484T	MCS0	-6.69	-6.26	-3.46	11.00	-14.46
	5230	46	ax (40MHz)	484T	MCS0	-2.53	-2.55	0.47	11.00	-10.53
	5210	42	ax (80MHz)	996T	MCS0	-4.43	-9.32	-3.21	11.00	-14.21
Band 2A	5260	52	ax (20MHz)	242T	MCS0	1.57	1.27	4.43	11.00	-6.57
	5280	56	ax (20MHz)	242T	MCS0	1.31	1.16	4.25	11.00	-6.75
	5320	64	ax (20MHz)	242T	MCS0	-0.94	-1.29	1.90	11.00	-9.10
	5270	54	ax (40MHz)	484T	MCS0	-2.86	-3.44	-0.13	11.00	-11.13
	5310	62	ax (40MHz)	484T	MCS0	-8.22	-8.66	-5.42	11.00	-16.42
	5290	58	ax (80MHz)	996T	MCS0	-5.89	-12.47	-5.03	11.00	-16.03
Band 2C	5500	100	ax (20MHz)	242T	MCS0	1.21	0.99	4.11	11.00	-6.89
	5600	120	ax (20MHz)	242T	MCS0	0.32	0.73	3.54	11.00	-7.46
	5720	144	ax (20MHz)	242T	MCS0	0.84	0.02	3.46	11.00	-7.54
	5510	102	ax (40MHz)	484T	MCS0	-4.99	-5.64	-2.29	11.00	-13.29
	5590	118	ax (40MHz)	484T	MCS0	-2.29	-3.29	0.25	11.00	-10.75
	5710	142	ax (40MHz)	484T	MCS0	-2.28	-3.36	0.22	11.00	-10.78
	5530	106	ax (80MHz)	996T	MCS0	-5.33	-10.31	-4.13	11.00	-15.13
	5610	122	ax (80MHz)	996T	MCS0	-6.83	-7.45	-4.12	11.00	-15.12
5690	138	ax (80MHz)	996T	MCS0	-10.66	-11.39	-8.00	11.00	-19.00	

Table 7-64. Bands 1, 2A, 2C MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

	Frequency [MHz]	Channel No.	802.11 Mode	Tones	Data Rate [Mbps]	Antenna-1 Power Density [dBm]	Antenna-2 Power Density [dBm]	Summed MIMO Power Density [dBm]	Max Permissible Power Density	Margin [dB]
Band 3	5745	149	ax (20MHz)	242T	MCS0	-1.94	-1.10	1.51	30.00	-28.49
	5785	157	ax (20MHz)	242T	MCS0	-2.16	-1.71	1.08	30.00	-28.92
	5825	165	ax (20MHz)	242T	MCS0	3.26	-2.17	4.35	30.00	-25.65
	5755	151	ax (40MHz)	484T	MCS0	-5.25	-5.61	-2.42	30.00	-32.42
	5795	159	ax (40MHz)	484T	MCS0	-6.07	1.10	1.87	30.00	-28.13
	5775	155	ax (80MHz)	996T	MCS0	-7.88	-6.84	-4.32	30.00	-34.32

Table 7-65. Band 3 MIMO Conducted Power Spectral Density Measurements MIMO (Full Tones)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 165 of 299

**Note:**

Per ANSI C63.10-2013 Section 14.3.2.2 and KDB 662911 v02r01 Section E)2), the power spectral density at Antenna 1 and Antenna 2 were first measured separately with reduced Antenna 1 and Antenna 2 powers per manufacture's tune-up document. The measured values were then summed in linear power units then converted back to dBm.

**Sample MIMO Calculation:**

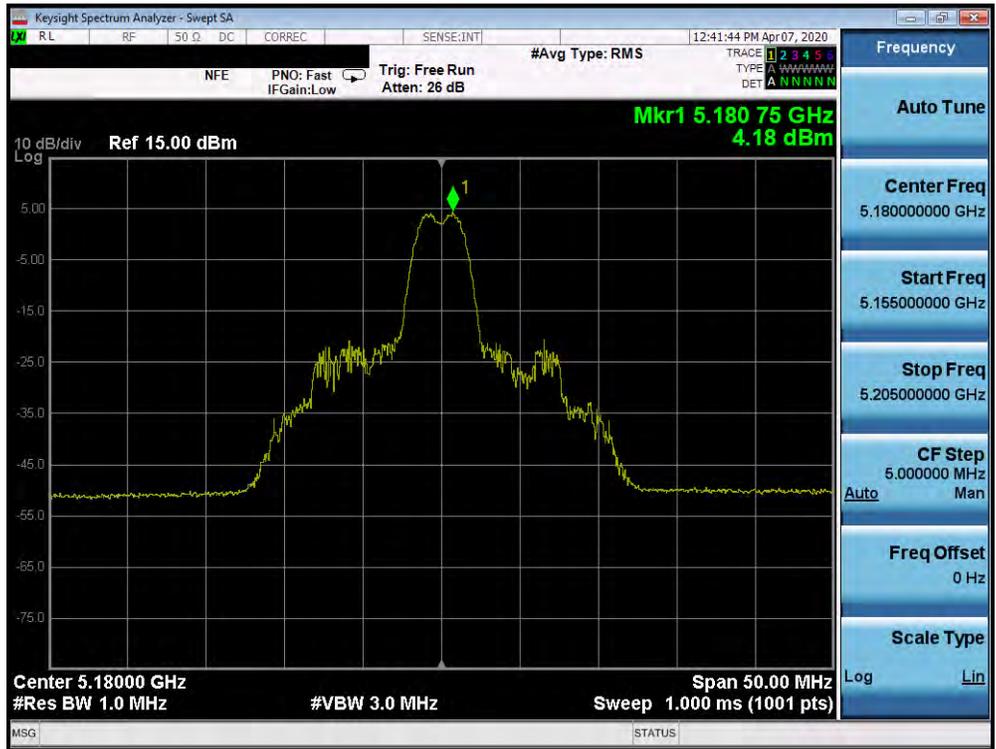
Assuming the average conducted power spectral density was measured to be 5.88 dBm for Antenna-1 and 6.27 dBm for Antenna-2.

$$\text{Antenna 1} + \text{Antenna 2} = \text{MIMO}$$

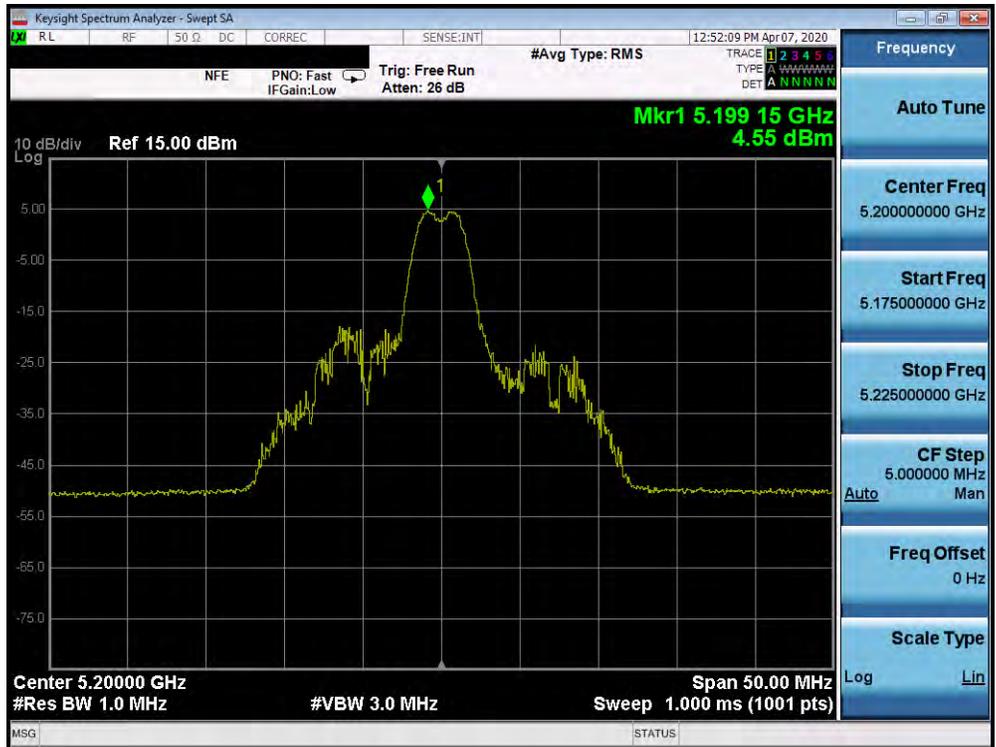
$$(5.88 \text{ dBm} + 6.27 \text{ dBm}) = (3.87 \text{ mW} + 4.24 \text{ mW}) = 8.11 \text{ mW} = 9.09 \text{ dBm}$$

<b>FCC ID:</b> A3LSMG981V		<b>MEASUREMENT REPORT (CERTIFICATION)</b>		<b>Approved by:</b> Quality Manager
<b>Test Report S/N:</b> 1M2003090034-08.A3L	<b>Test Dates:</b> 3/17 – 5/8/2020	<b>EUT Type:</b> Portable Handset	Page 166 of 299	

## MIMO Antenna-1 Power Spectral Density Measurements (26 Tones)

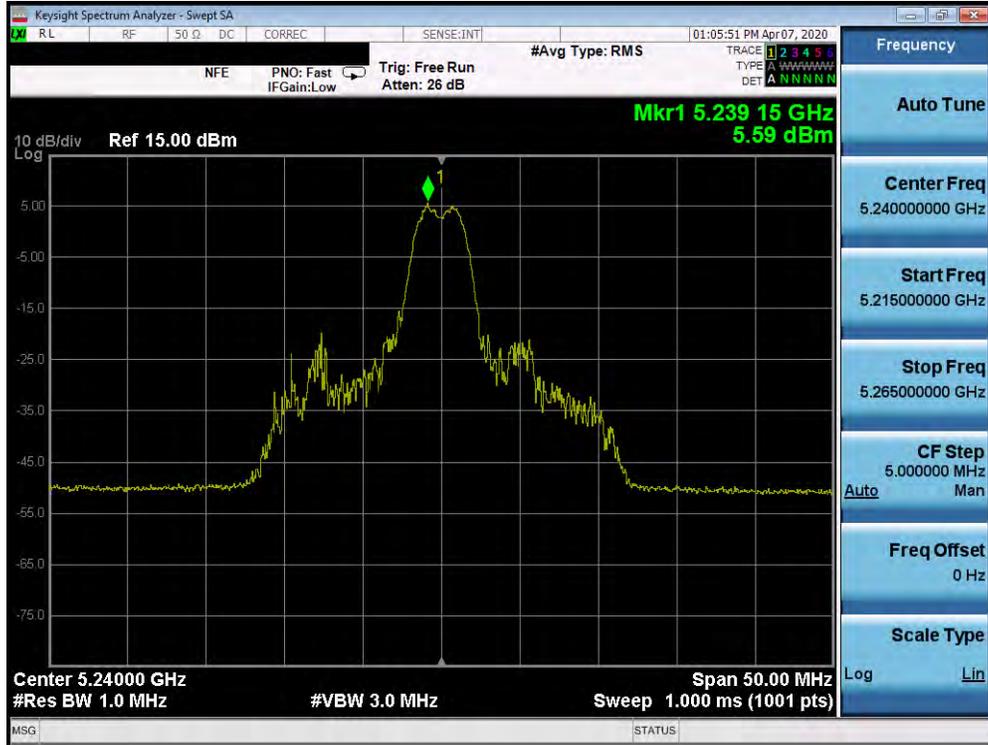


Plot 7-217. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 36)

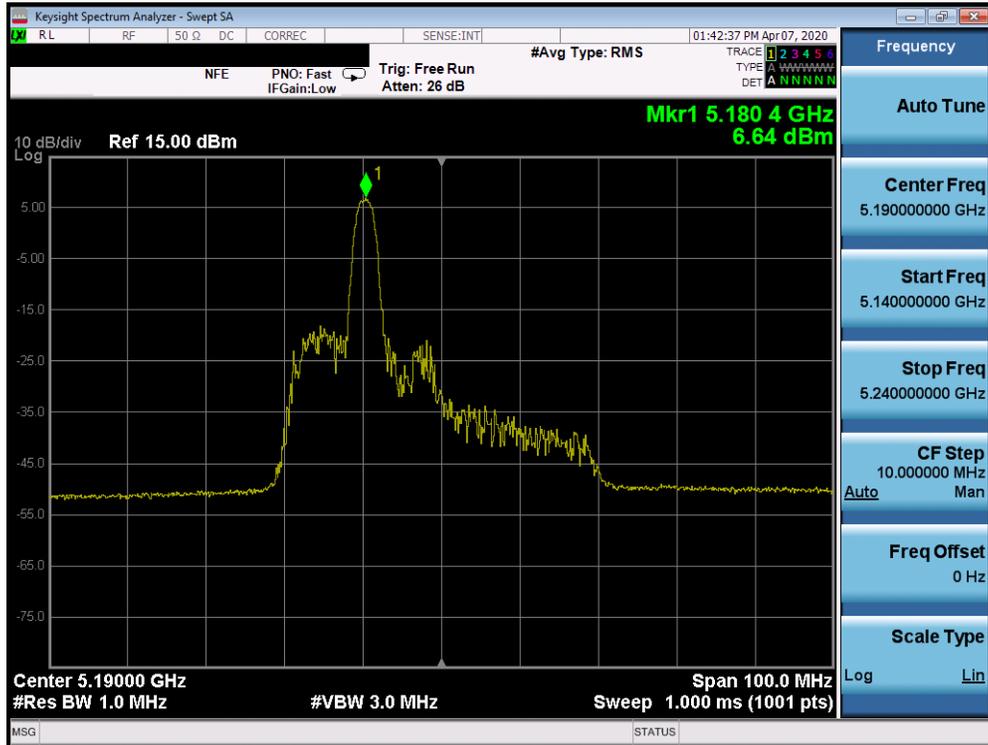


Plot 7-218. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 40)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 167 of 299

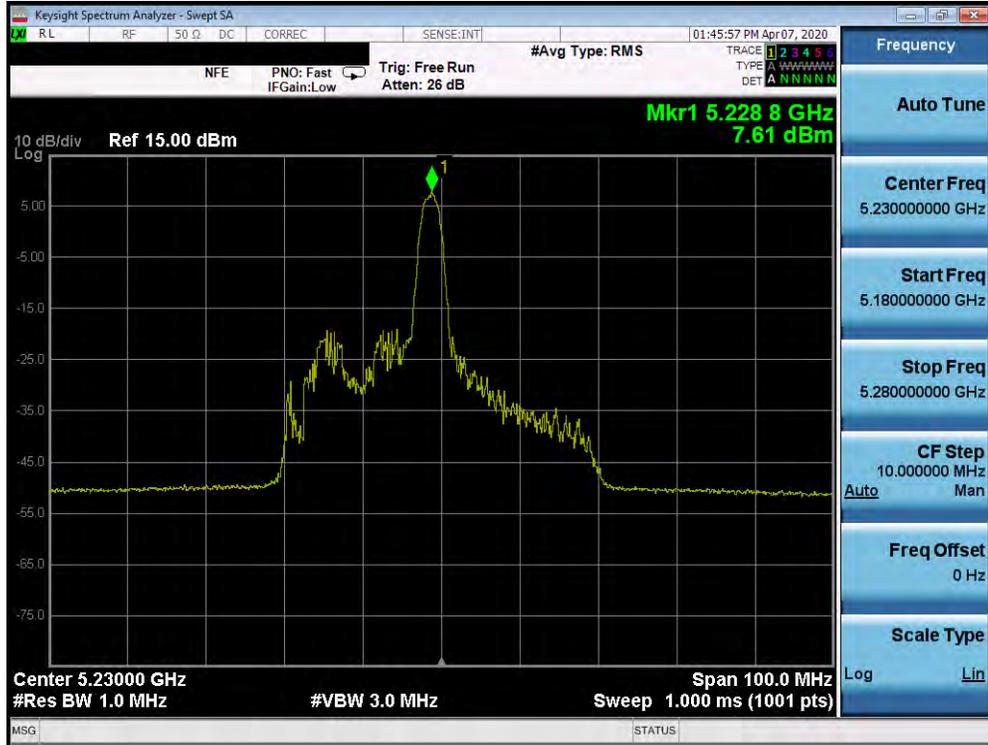


Plot 7-219. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 48)

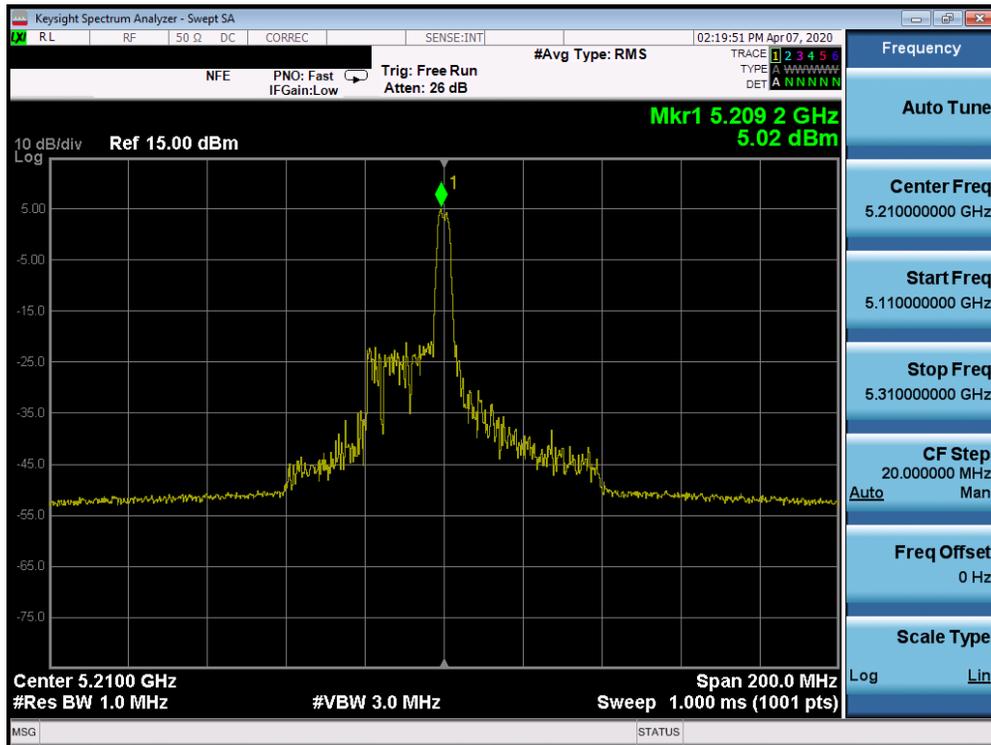


Plot 7-220. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 38)

FCC ID: A3LSMG981V	PCTEST Proud to be part of Samsung	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 168 of 299

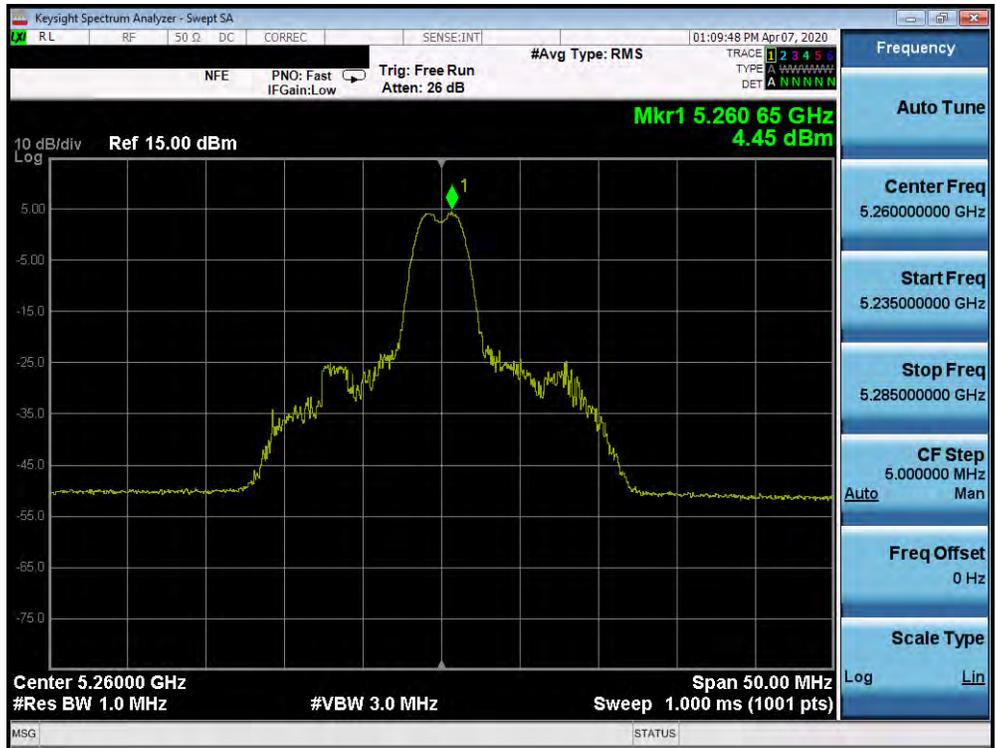


Plot 7-221. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 46)

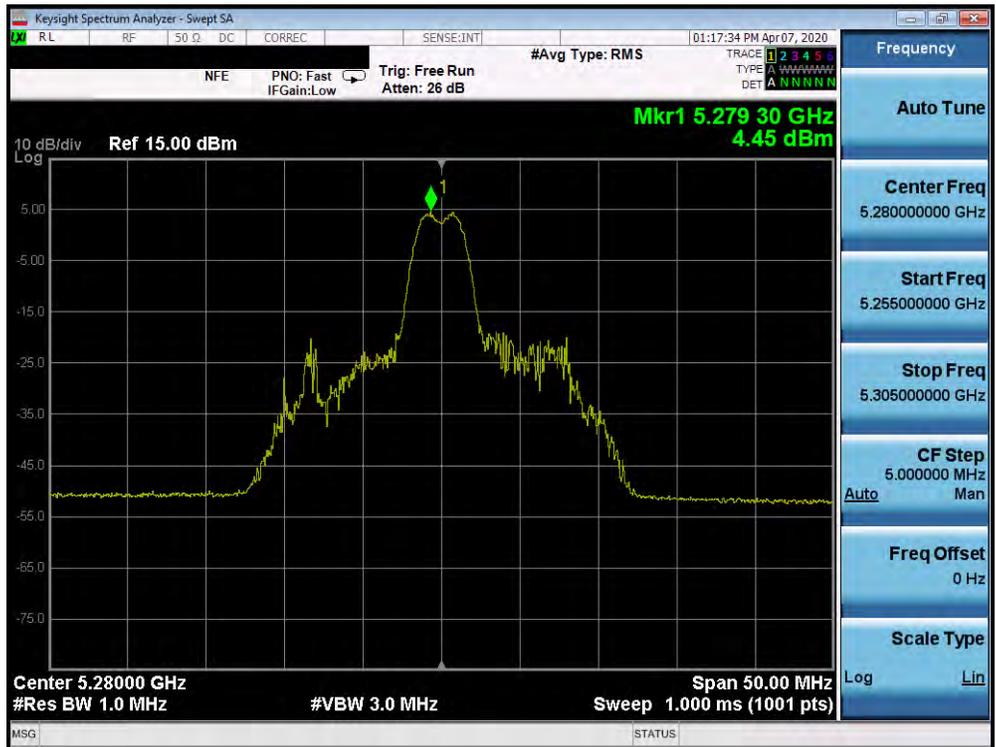


Plot 7-222. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 1) – Ch. 42)

FCC ID: A3LSMG981V	<b>PCTEST</b> Proud to be part of Samsung	MEASUREMENT REPORT (CERTIFICATION)	<b>SAMSUNG</b>	Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 169 of 299

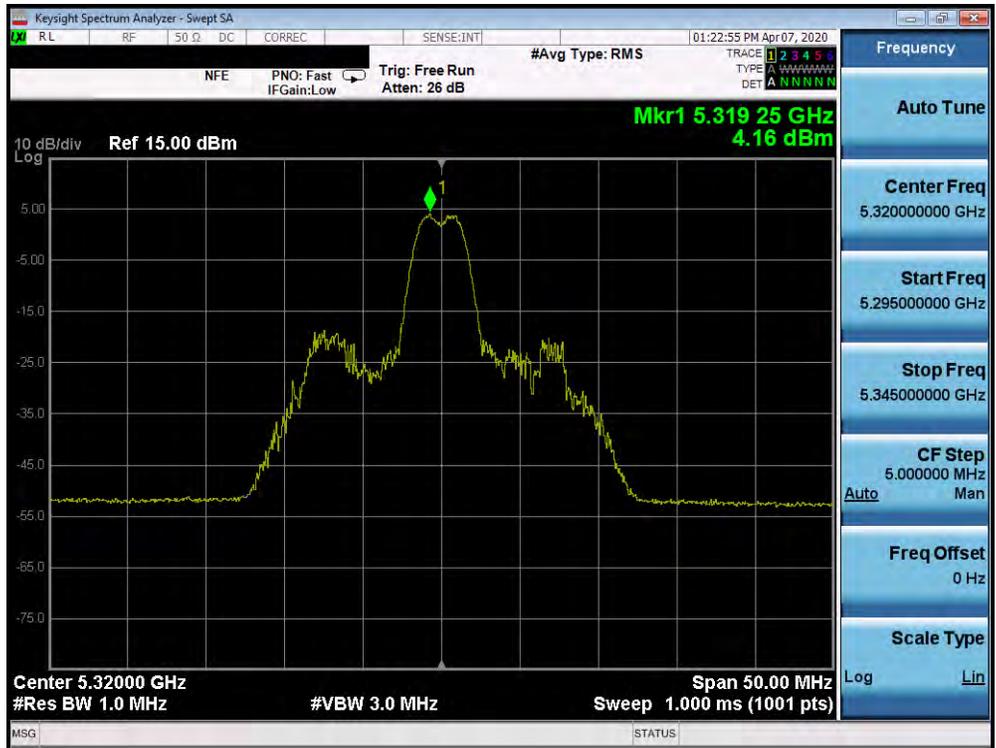


Plot 7-223. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 52)

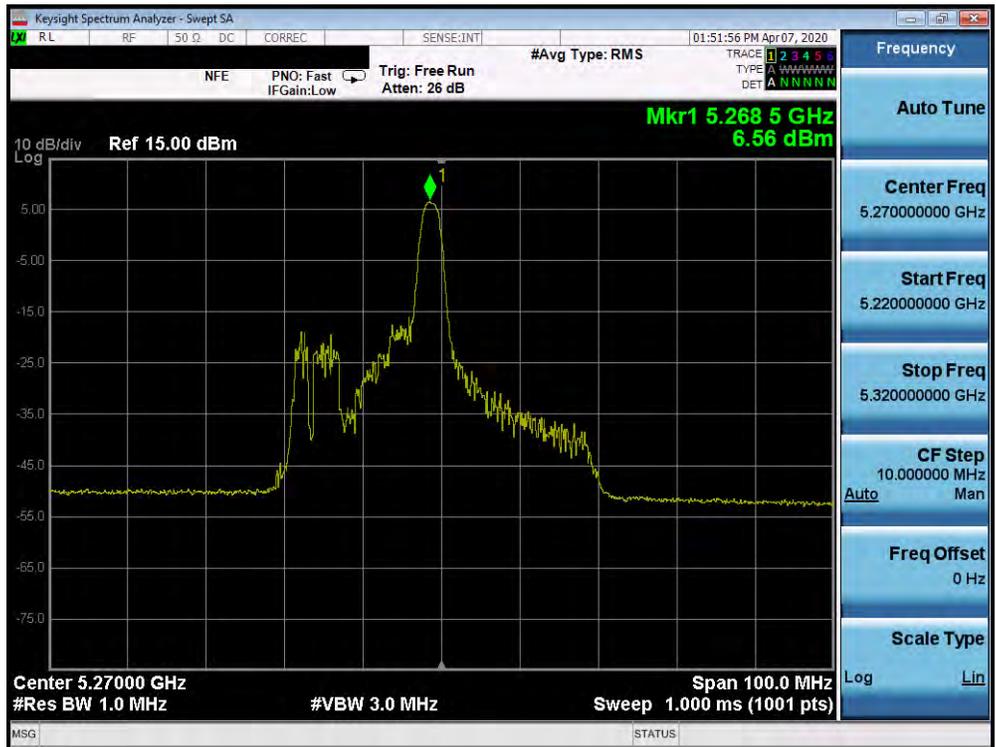


Plot 7-224. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 56)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 170 of 299

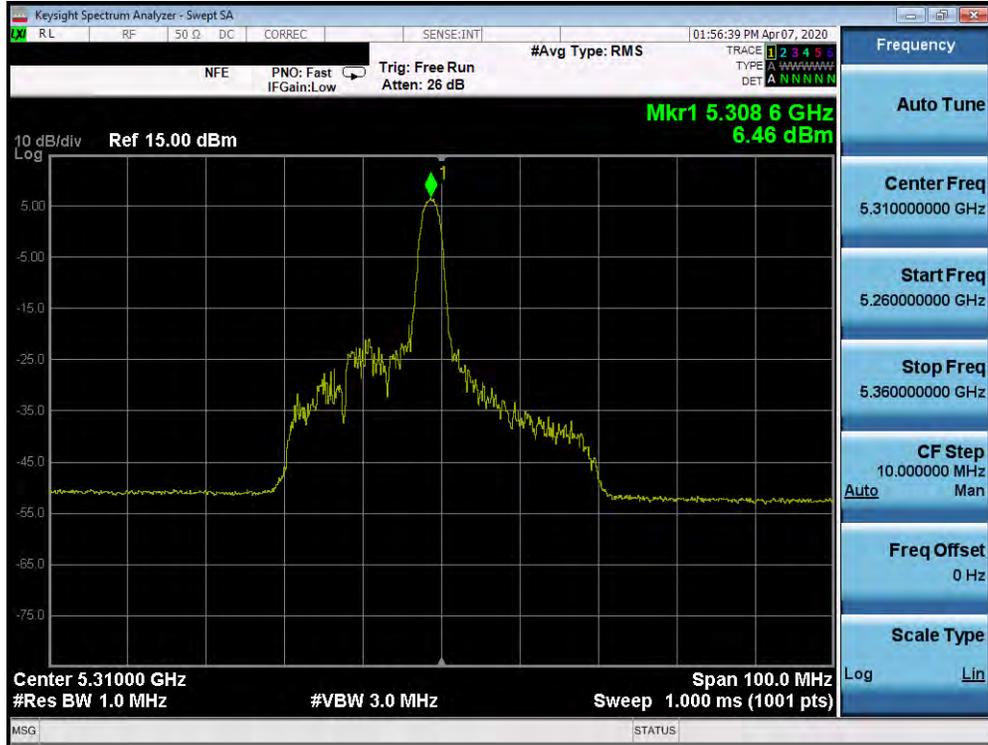


Plot 7-225. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 64)

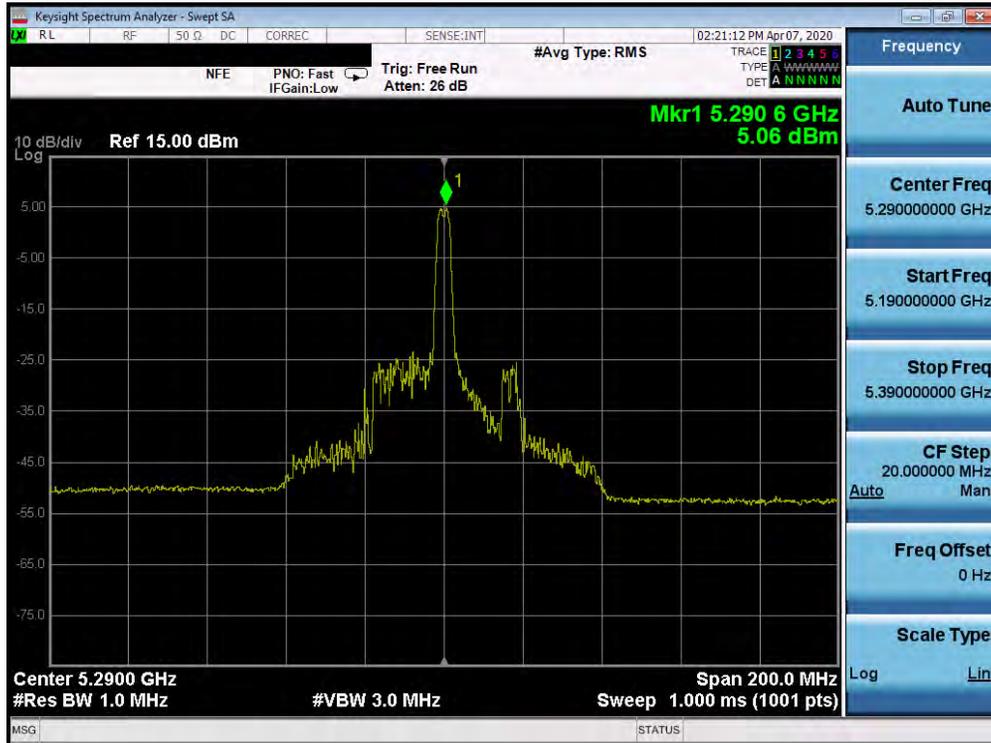


Plot 7-226. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 54)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 171 of 299

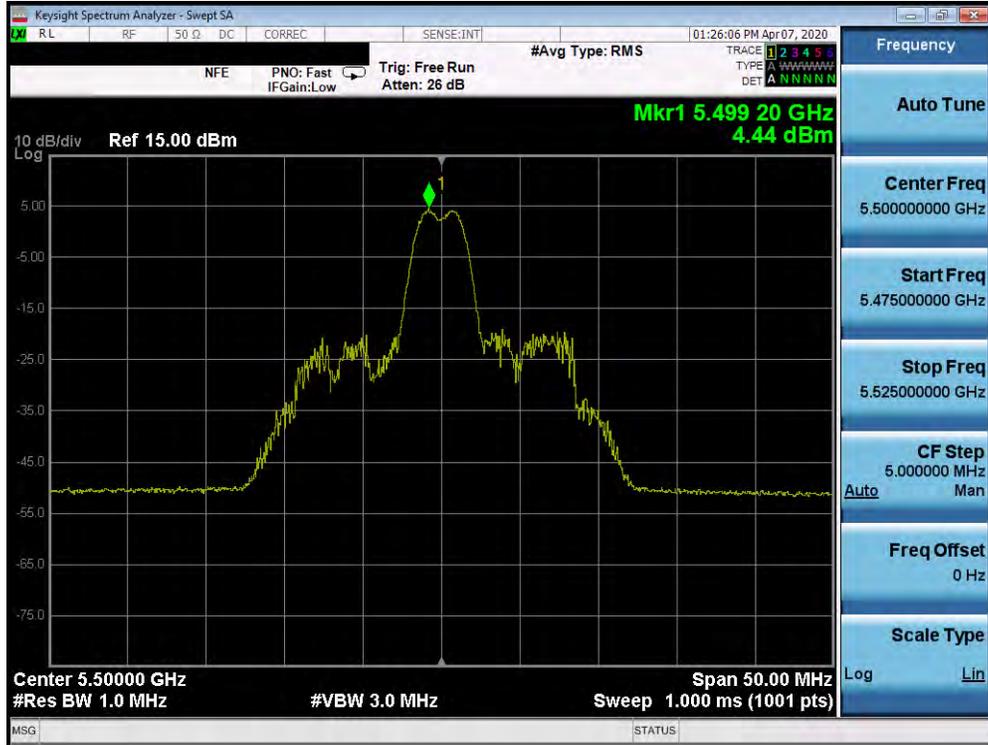


Plot 7-227. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 62)

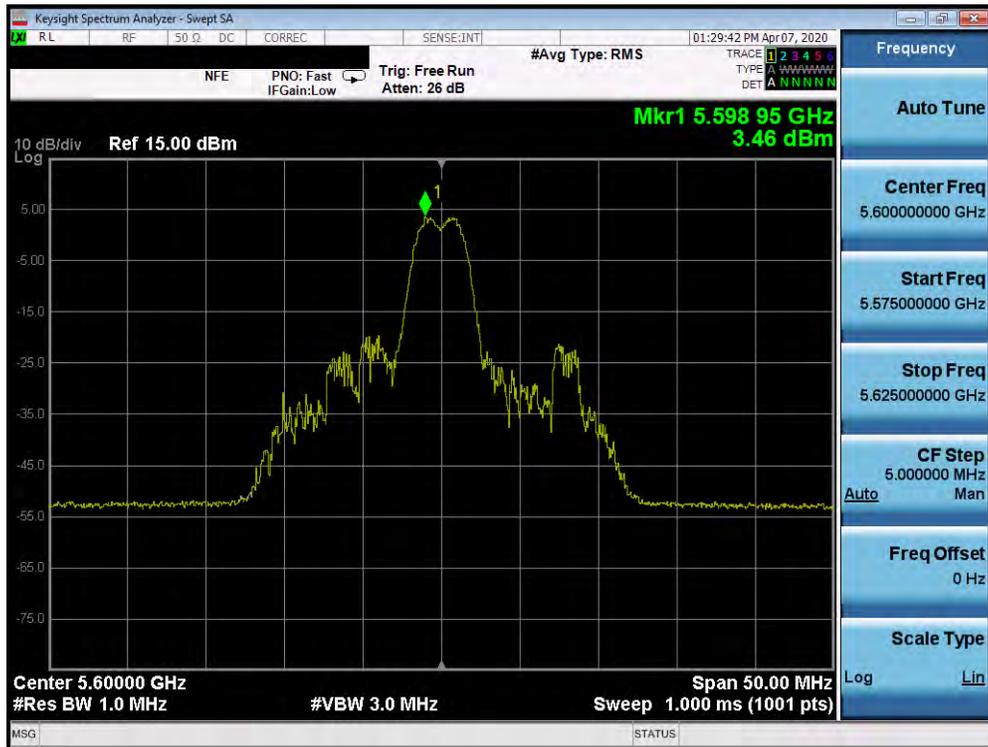


Plot 7-228. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2A) – Ch. 58)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 172 of 299

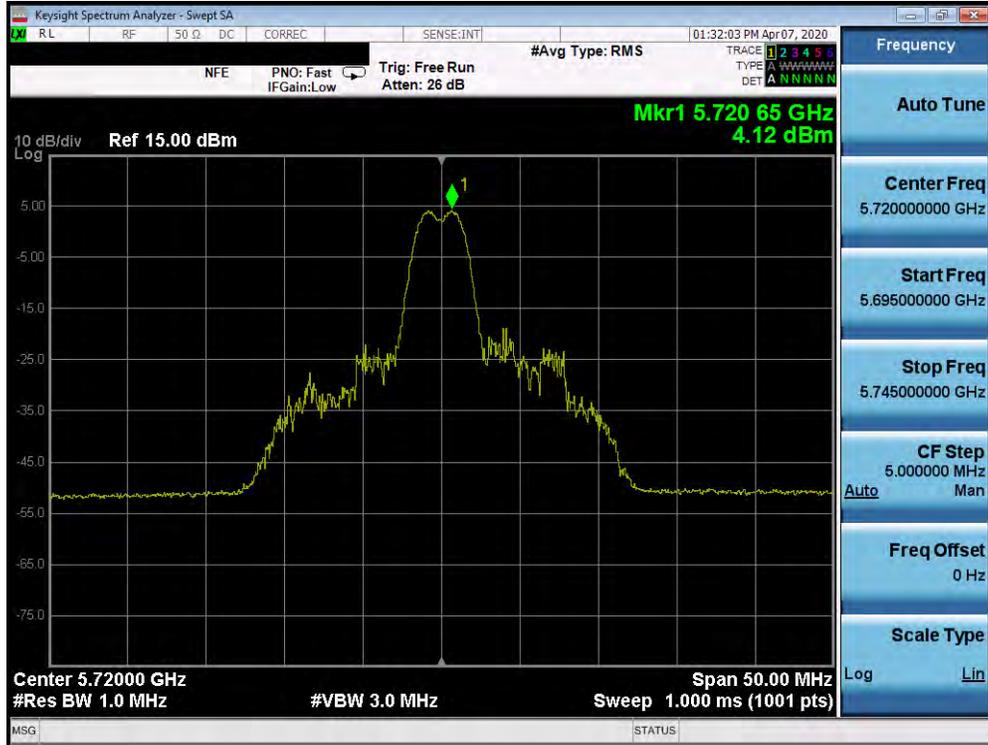


Plot 7-229. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 100)

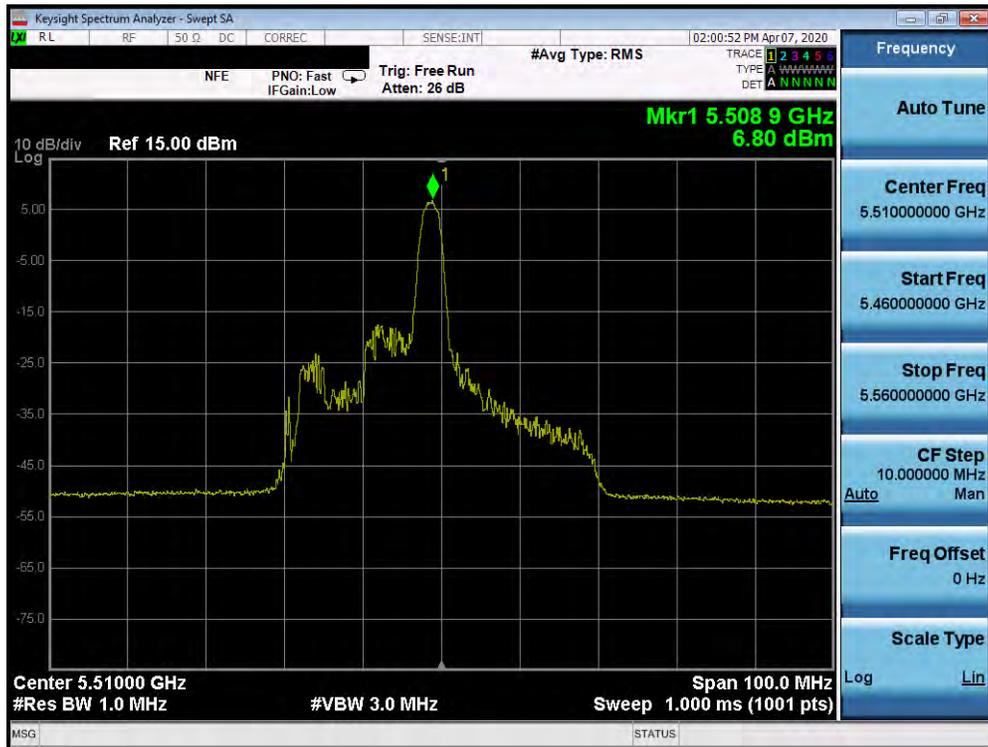


Plot 7-230. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 120)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 173 of 299

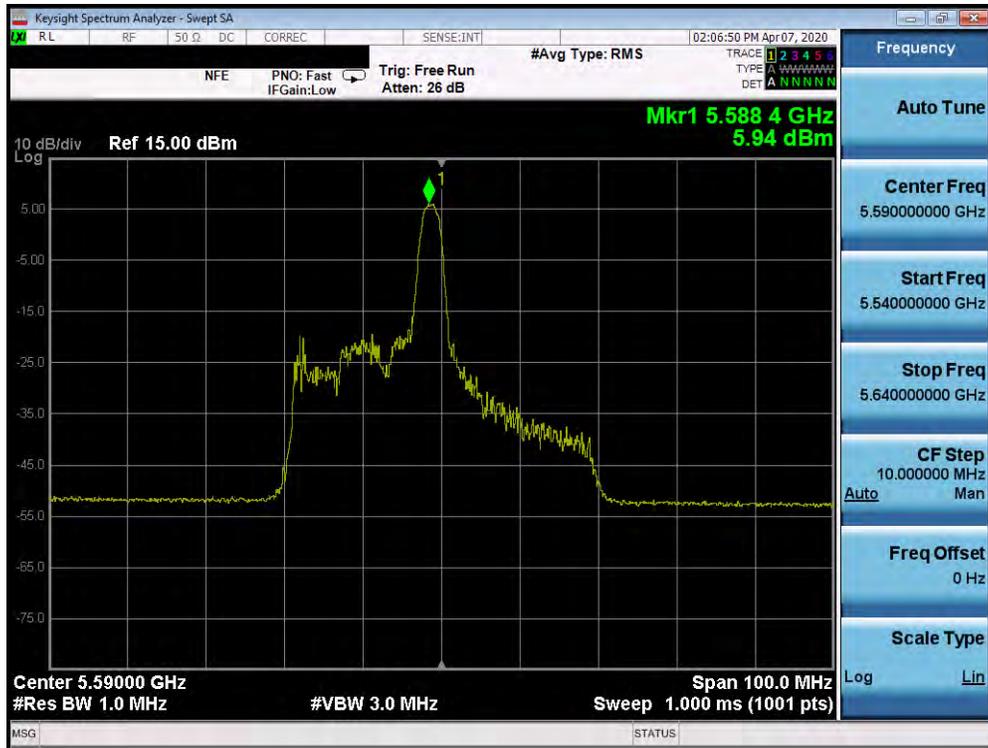


Plot 7-231. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 144)

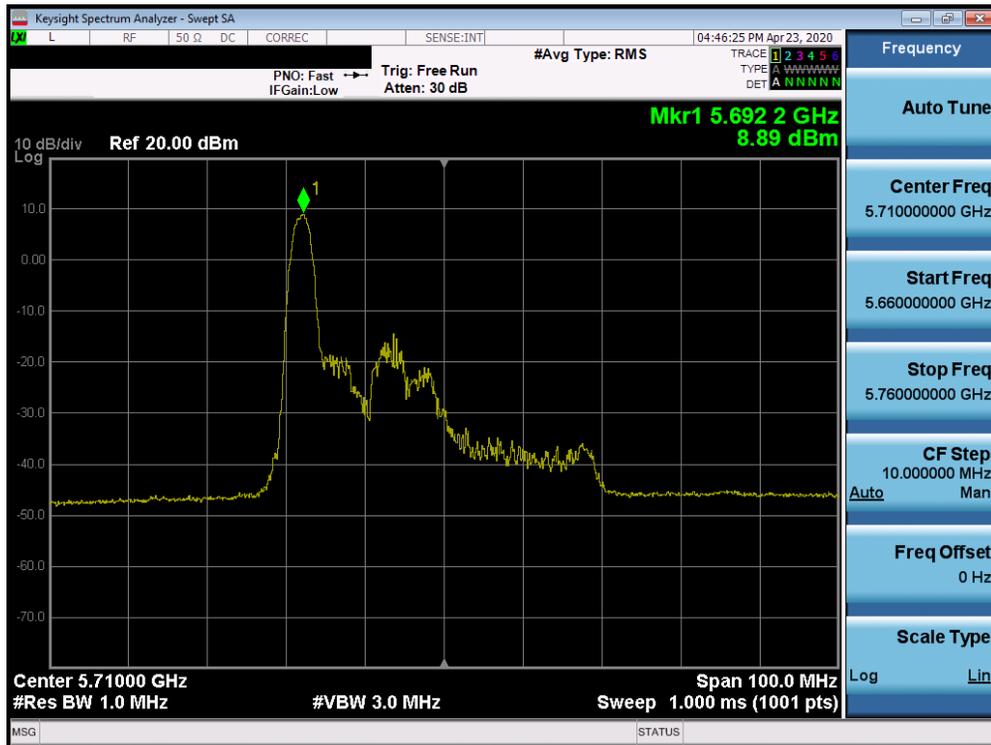


Plot 7-232. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 102)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 174 of 299

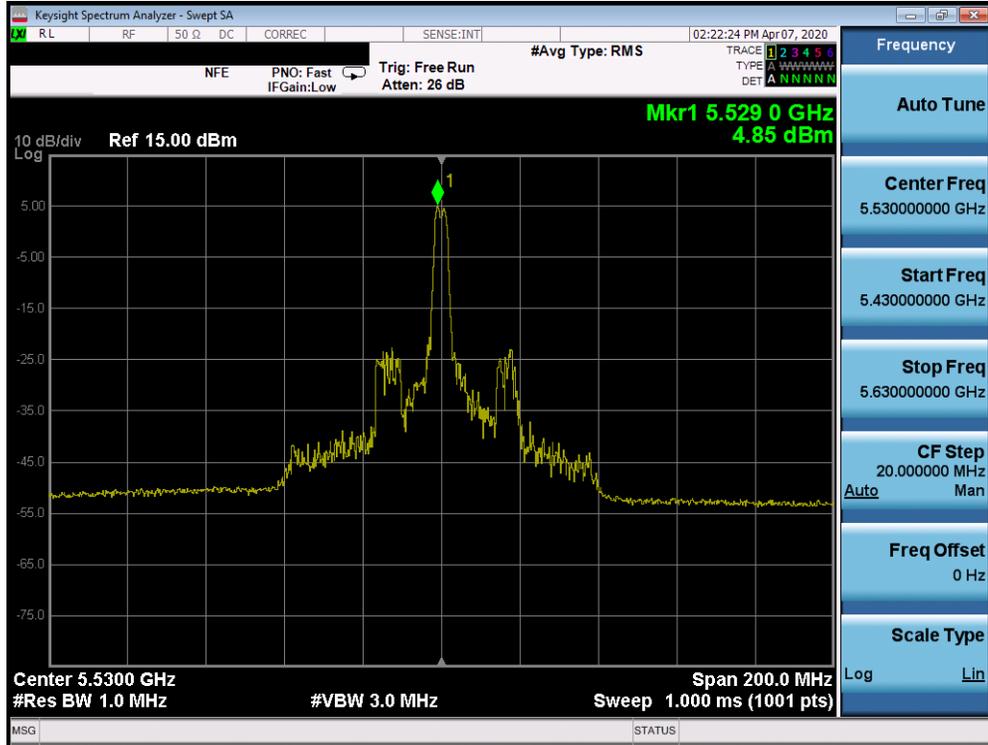


Plot 7-233. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 118)

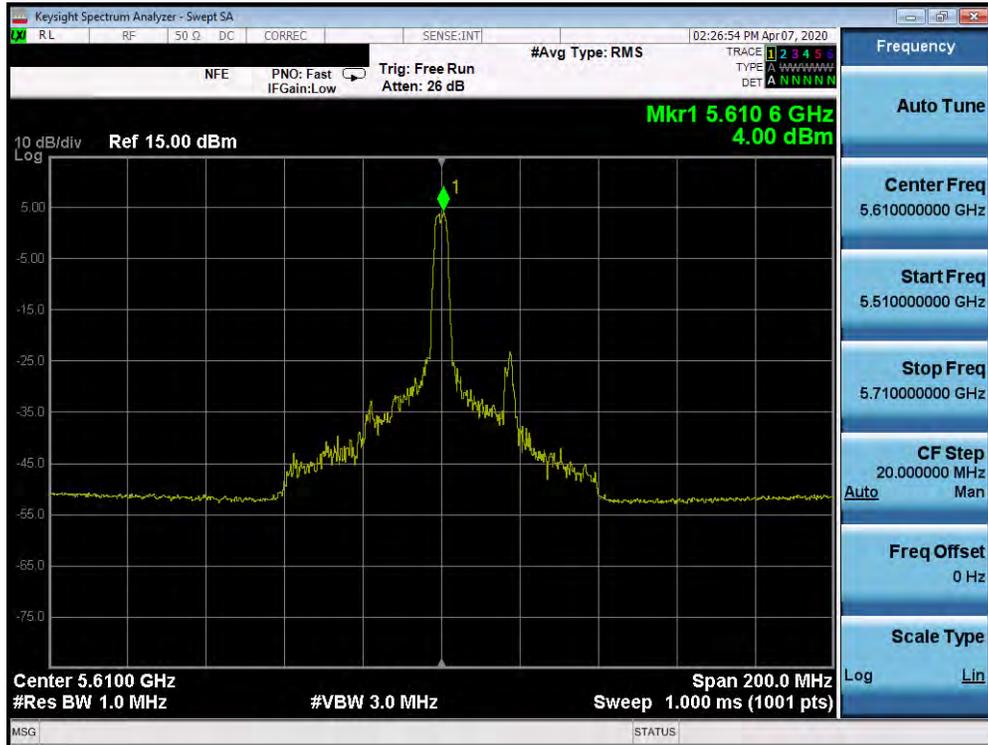


Plot 7-234. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 142)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 175 of 299

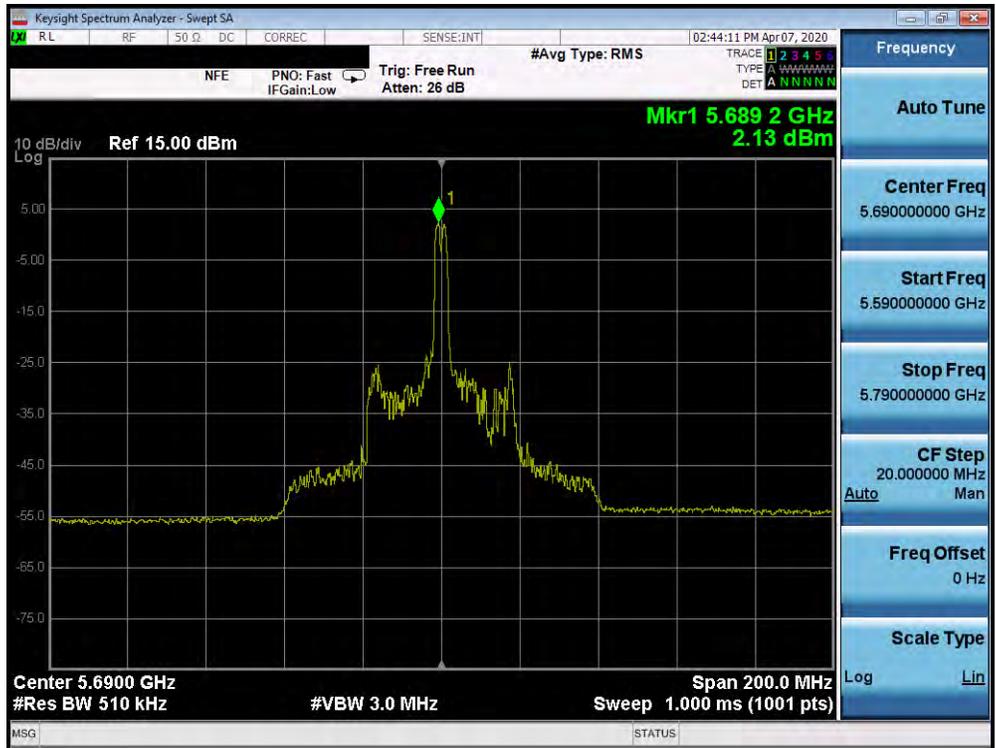


Plot 7-235. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 106)

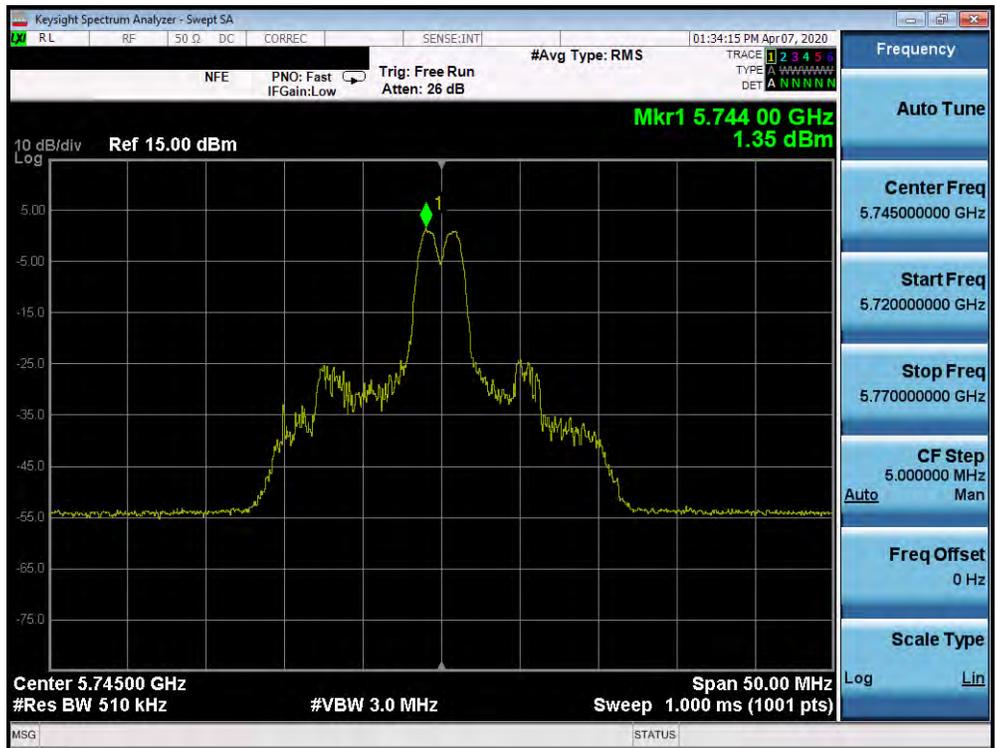


Plot 7-236. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 122)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 176 of 299



Plot 7-237. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 2C) – Ch. 138)



Plot 7-238. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 149)

FCC ID: A3LSMG981V	PCTEST Proud to be part of Samsung	MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 177 of 299

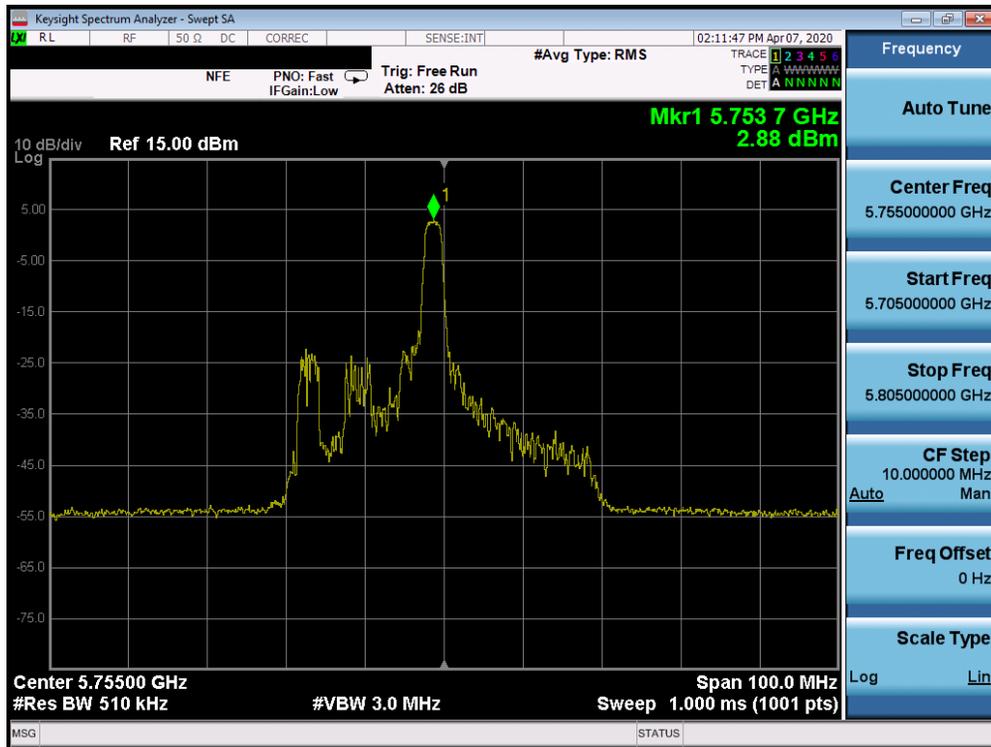


Plot 7-239. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 157)

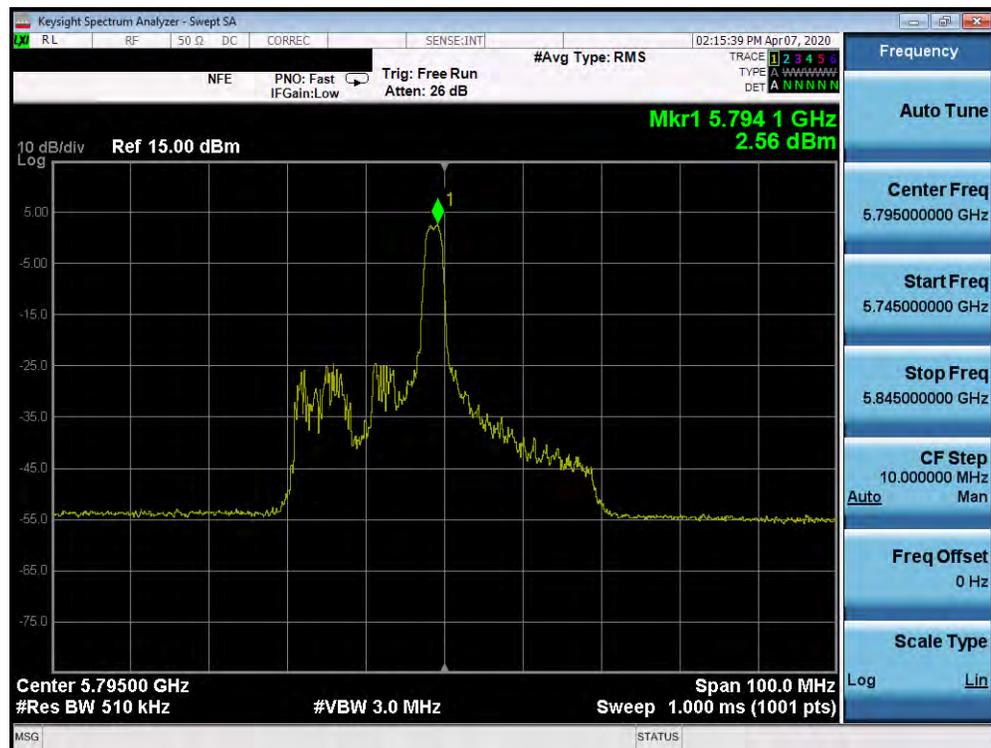


Plot 7-240. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 165)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 178 of 299



Plot 7-241. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 151)

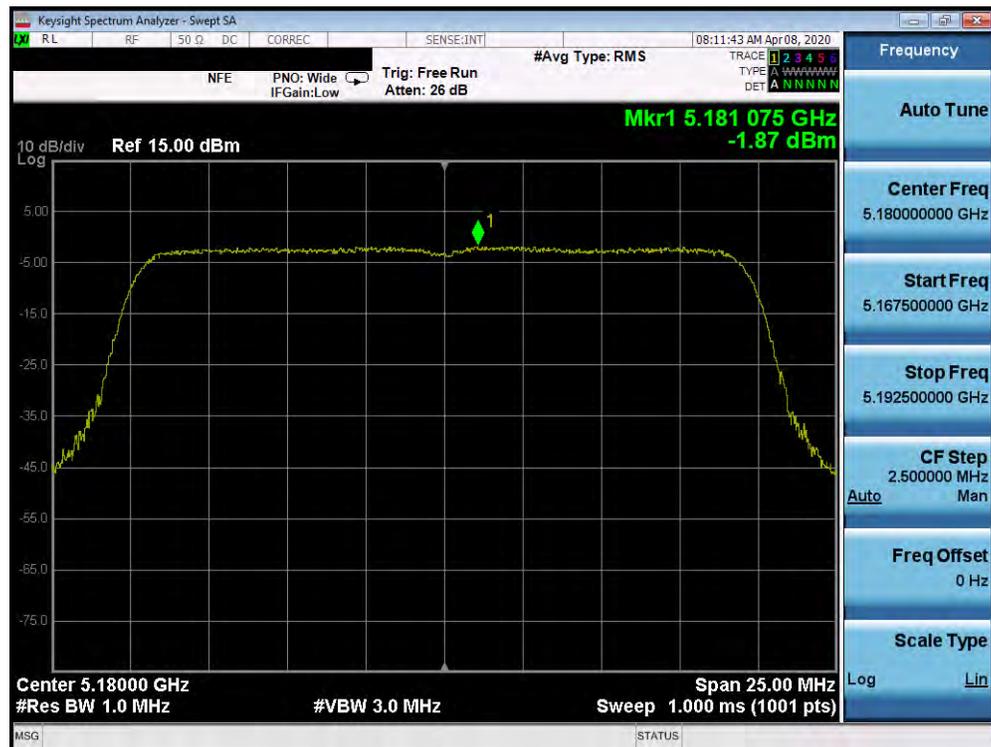


Plot 7-242. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 159)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 179 of 299

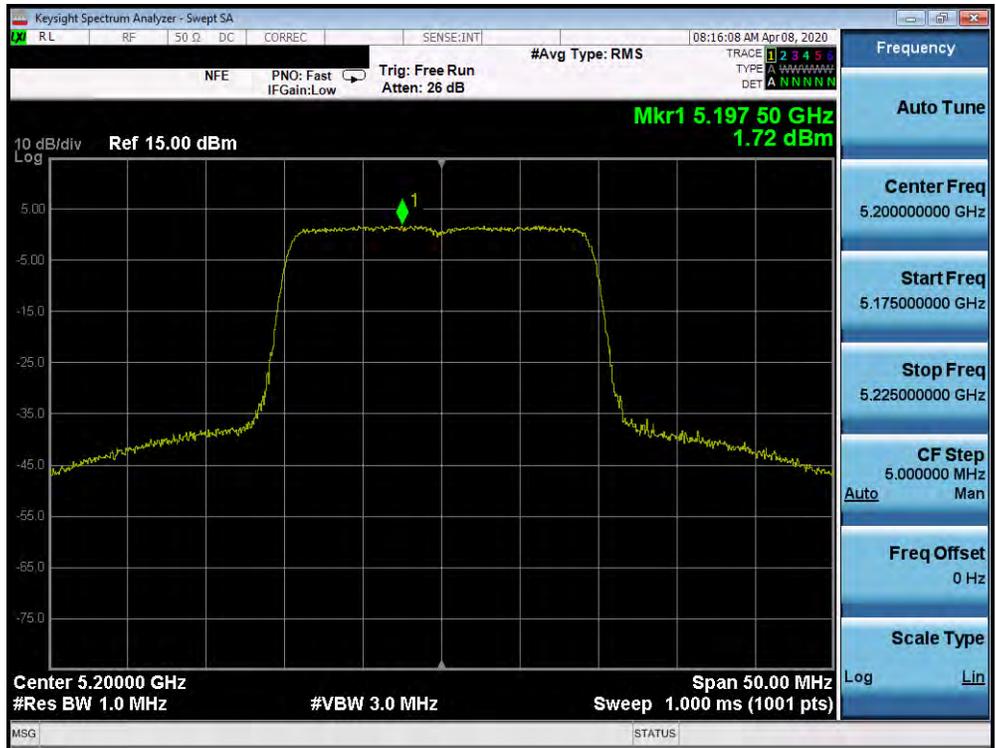


Plot 7-243. Power Spectral Density Plot MIMO ANT1 (80MHz BW 802.11ax – 26 Tones (UNII Band 3) – Ch. 155)

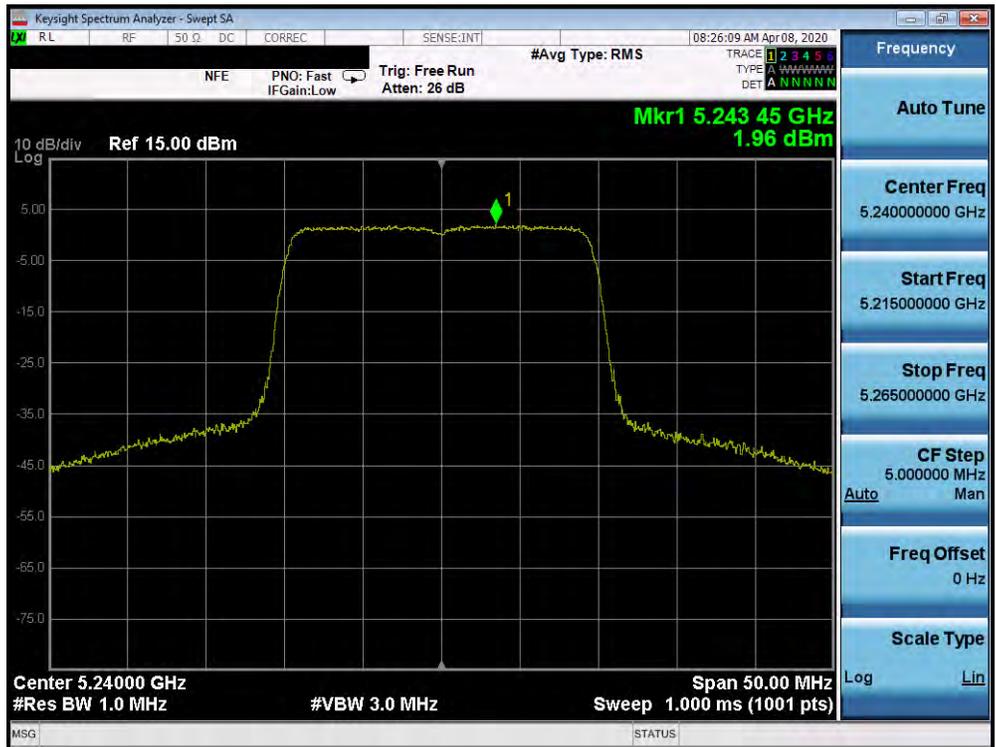


Plot 7-244. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 36)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 180 of 299

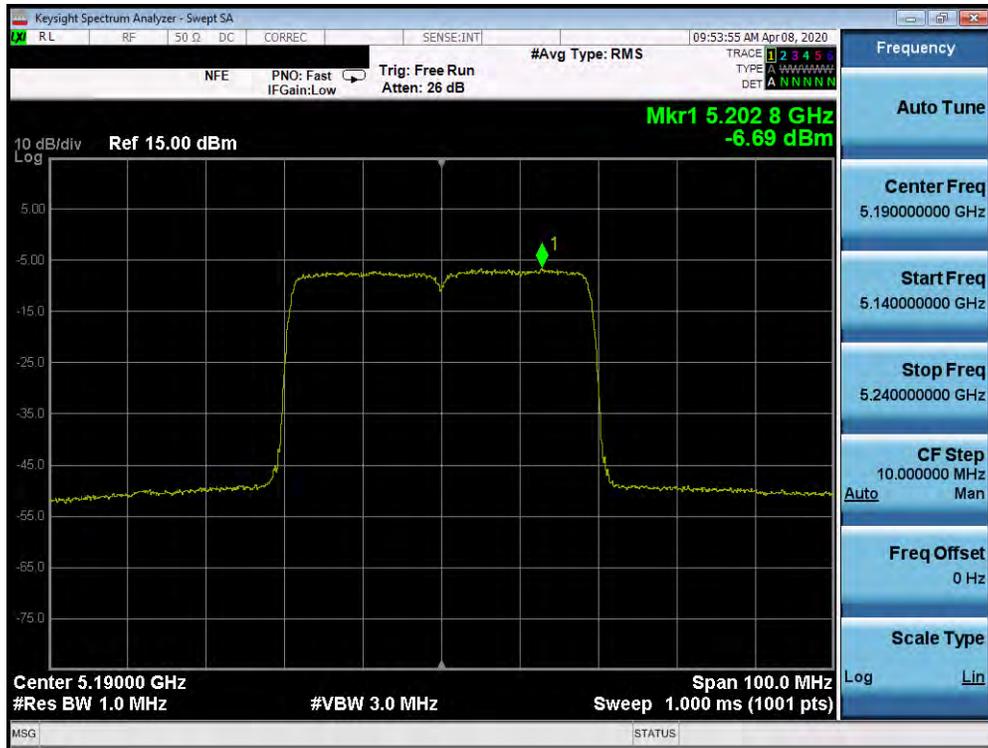


Plot 7-245. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 40)

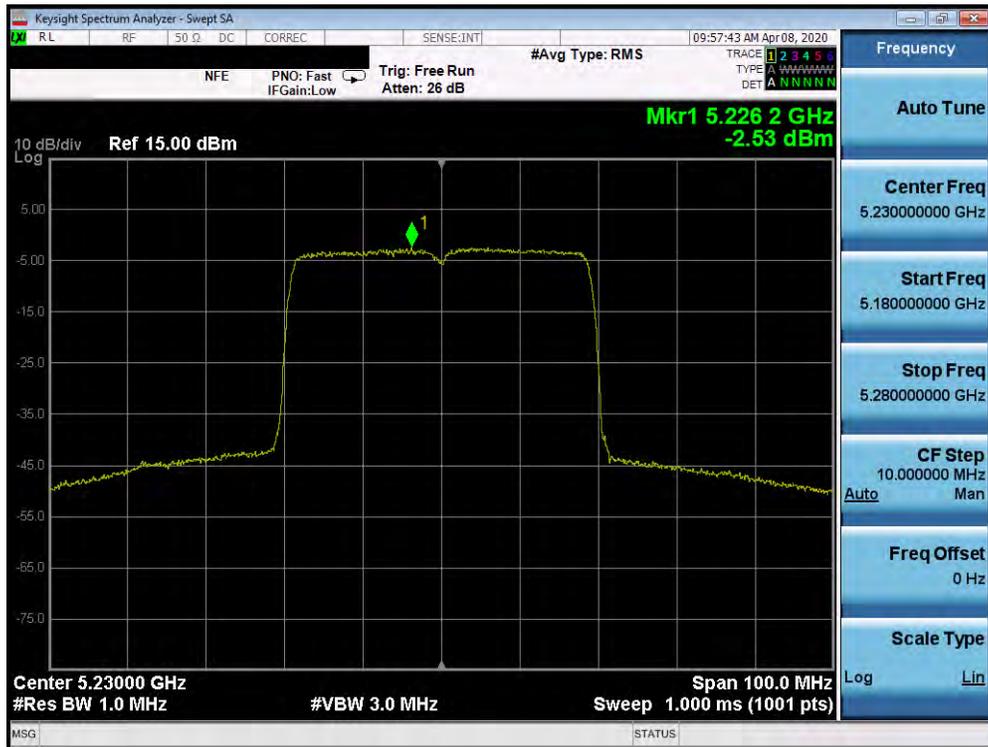


Plot 7-246. Power Spectral Density Plot MIMO ANT1 (20MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 48)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 181 of 299



Plot 7-247. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 38)



Plot 7-248. Power Spectral Density Plot MIMO ANT1 (40MHz BW 802.11ax – Full Tones (UNII Band 1) – Ch. 46)

FCC ID: A3LSMG981V		MEASUREMENT REPORT (CERTIFICATION)		Approved by: Quality Manager
Test Report S/N: 1M2003090034-08.A3L	Test Dates: 3/17 – 5/8/2020	EUT Type: Portable Handset		Page 182 of 299